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RAILWAY AGE

Will There Be a Shortage of Transportation?

There has been prepared in the Office of Production Management in Washington a memorandum which begins with the somewhat startling assertion, "This survey indicates an imminent serious shortage of transportation facilities." It was ostensibly intended to be circulated only within OPM, but some of its estimates of future traffic, of railway equipment needs and of freight-car-building capacity got into the newspapers, so the *Railway Age* secured a copy and has carefully studied it. It estimates a shortage of 132,000 cars when the 1941 fall traffic peak is reached which "may become one of the most serious 'bottlenecks' of the defense program," and that "to meet peak requirements in the fall of 1942 an unprecedented car building program of a minimum 370,000 freight cars will be required. This program," it says, "exceeds the most optimistic estimates of existing car building capacity in the United States. During the last twenty years the highest car construction attained in car building shops was 175,748 in 1923."

Those are alarming forecasts. Are they soundly based? The country has been believed by students of economics to have had for more than a decade a larger surplus of transportation facilities than of anything else excepting, perhaps, agricultural producing capacity. Has this surplus of transportation facilities so suddenly been converted, by expansion of the capacity or production of other industries, into an imminent large shortage which threatens to become much larger in 1942? If so, not merely OPM, but the entire nation, should be given full warning of it. If not, OPM and the nation should be not frightened by forecasts of it —as it has been by the fake oil "shortage" in the eastern states and by other alleged current or prospective "shortages" which have been bruited from New Deal sources plainly to cause a war psychology. The propaganda Hitler used to lead the German people into the present war is being very cleverly imitated by our New Dealers to lead our people into it, and also into state socialism. The OPM memorandum contains this sinister and significant statement: "These estimates (of traffic and car supply) assume, of course, no drastic change in the operating practices of railways through the intervention of the I. C. C. or other government agency." The implication that the railways will have to make good "or else" is quite plain.

A Car Shortage This Fall?

First, then, regarding the alleged prospective shortage of 132,000 freight cars in the fall of 1941. If it is coming we probably will have it within less than a month. The OPM memorandum first estimates that total carloadings in 1941 will be 46,200,000, or 27 per cent larger than in 1940. That is certainly some estimate; for in the first two-thirds of the year carloadings increased **only 18.2 per cent** over 1940, and therefore to increase 27 per cent in the entire year they would have to increase **45 per cent** in the last third of the year. Is there any prospect of that? None whatever. Since June loadings have been increasing less than seasonally. They reached their maximum increase of 24 per cent over 1940 in May. The *Railway Age* in that month predicted that the increase during the rest of the year would at least be no larger, and it has since been decelerating, having averaged in June, July and August only 20 per cent, and only 15 per cent in the first two weeks of September. But the best measure of **seasonal** changes, and the one this paper always uses, is the average loadings of each week in the five prosperous years 1925-1929, inclusive. In June loadings were 85.5 per cent of this average—the highest compared with it thus far this year; in July, 85.1 of it; in August, 82 per cent; and in the first two weeks of September only 80 per cent.

Prospective 1941 Traffic Greatly Exaggerated

The trend shown by these figures indicates that in the last one-third of 1941 loadings will not be more

than 80 per cent as large as they averaged in the last one-thirds of 1925-1929, inclusive. Loadings in the first thirty-six weeks of the year were 28,522,053; and 80 per cent of the 1925-1929 average in the rest of the year would be 13,233,200, or a total for the year of 41,755,000—a gain of 15 per cent over 1940 instead of 27 per cent, as estimated in the OPM memorandum. Even if they should make throughout 1941 the increase of 18.2 per cent over 1940 that they made in the first two-thirds of the year—and, also, by a coincidence in the last week before the Labor Day holiday—they would be in the entire year 43,000,000—about 7 per cent less than the 46,200,000 estimated in the OPM memorandum.

After having made its estimate of a 27 per cent increase in 1941 the OPM memorandum backs away from it in estimating traffic demands and the car shortage at the peak of traffic in the fall of 1941. It says: "The carloadings (of 46,200,000) for direct and indirect defense were estimated on the basis of a scheduled $17 billion expenditure. The rate of expenditures during the first half of 1941 indicates that expenditures for this entire year may not be more than $15 billion. * * * This more conservative level for 1941 was utilized in calculating the peak requirements." It then proceeds to estimate that "carloading requirements during the peak period of 1941 will be about 1,030,000 a week"; that the railroads have never loaded more than 1 car for each 1.64 railroad-owned cars available in good condition and actually used; that they cannot be expected to improve this ratio to better than 1.6; that they will have available in good condition at the peak of traffic only 1,586,143 railroad-owned cars; and thus it arrives at a prospective shortage of not less than 80,000 cars and probably of 130,000 this fall.

Can Railways Handle 1941 Peak of Traffic?

The *Railway Age* cannot very decently quarrel with an estimate of peak loadings this fall of 1,030,000 cars, because it made about the same estimate a few months ago. But we predicted then that the increase of traffic would decelerate; it has decelerated even more than we then predicted; and forecasts should be revised as trends change. The trend of traffic during the last three months, and its present level, do not support an estimate that carloadings this fall will exceed 1,000,000 a week at the peak. If, as in the first two-thirds of the year, they should be only 18 per cent larger than in 1940, they would average about 965,000 a week in October and reach a maximum of about 990,000. If, as the recent trend indicates, they should be only 80 per cent of the 1925-1929 average, they will average only about 925,000 a week in October and reach a peak of only about 930,000. Let us assume that they will reach the largest figures mentioned—an average of 965,000 in the four largest weeks and a peak of 990,000 in the largest week.

The OPM memorandum says no greater efficiency has ever been attained during any month than the loading of 1 car per week for each 1.64 "active" cars, but concedes that a ratio of 1.6 can be attained while assuming no better ratio than this can be attained, and on this ratio bases its forecast of a shortage. But the ratio of 1.64 already has been beaten in two different weeks—in the week ended October 21, 1939, when it was 1.59, and in the last week of June, 1941, when it was 1.62; and it probably was beaten again in the last week of August, 1941, although all the statistics needed to prove it are not yet available.

Car Shortage Will Be Narrowly Escaped

In view of the increases in the efficiency of car utilization that have occurred right up to the present time, there is apparently no reason for believing that it cannot and will not be further increased. There were available 1,589,203 serviceable railroad-owned cars on August 15, and the number undoubtedly will be increased before October. Suppose that a ratio of only 1 car loaded to 1.59 available should then be attained. In that case, if the demand for loading in October averaged 965,000 cars a week and rose to a maximum of 990,000, there would be an average surplus during October of 55,000 cars and a surplus during the week of largest demand of 15,000. And if October loadings should be only 80 per cent of the 1925-1929 average, as the recent trend indicates, the surpluses would be larger.

Needless to say, this is very close figuring. Different types of cars are used for different purposes, most types are used throughout the country, and there may be shortages of some types while there are surpluses of others, and shortages in some sections while there are surpluses in others. But there seems no probability now of substantial shortages this fall if railways and shippers continue co-operating to the utmost in using cars with the greatest practicable efficiency. Apparently they could, in fact, create a substantial surplus by achieving the by no means impracticable result of reducing at the peak of demand from 1.59 to 1.55 the number of cars actually used in service for each one loaded. In that case, with the 1,589,203 railroad-owned cars that were available on August 15 they could attain loadings of 1,025,000 cars a week—only 5,000 less than the peak requirements estimated in the OPM memorandum and which it estimates would cause shortages of 80,000 to 130,000 cars.

How, Then, About 1942?

Well, then, how about 1942? The OPM memorandum estimates that "to meet peak requirements in the fall of 1942 an unprecedented car building program of a minimum of 370,000 freight cars will be required." This is based upon the following estimates: First, that carloadings will be 50,400,000 in 1942, or 38 per cent larger than in 1940; second, that the "weekly peak load" in the fall of 1942 will be 1,140,000 carloads, also about 38 per cent more than in October, 1940; third, that

during the year from October to October about 62,000 cars will have to be retired from service; and, fourth, that "a net addition of 308,000 cars will have to be installed to meet peak requirements."

Loadings exceeded this estimate for 1942 in each of the five years 1925-1929, inclusive—in fact, were 53,098,819 in 1926 in which year they reached a fall peak in one week of 1,208,878. Presumably it would not be assumed by anybody that the railways could not handle this many loads again excepting for the fact that they now own about 650,000 less freight cars than in 1926. But the number of freight cars is by no means the only measure, or a reliable measure, of the freight traffic the railways can handle, because they are by no means the only facility the capacity of which can be so increased as to increase carrying capacity. The capacity of main line, yards and terminals, and also, with better locomotives, the speed of yard operations and trains, have been increased since the '20's, and can be much further increased, with the result of increasing the average miles moved by each car daily. And, of course, **carloadings** do not have to increase in proportion to the increase of traffic demands because the **average load per car** can be increased.

How Can Defense Industries So Greatly Increase Their Production?

But why estimate that car loadings will rise in 1942 to 50,400,000, or 38 per cent over 1940 even if average load per car is not increased? The estimate made in the OPM memorandum for 1941 was an increase of 27 per cent in loadings over 1940; whereas, as we have shown, the actual increase in the first two-thirds of 1941 was only 18.2 per cent, and the recent trend indicates that in the entire year it may not be more than 15 per cent. Why accept the estimate of this "authority" for 1942 when its estimate for 1941 already has proved so far wrong? Its estimates of the demand for transportation are based on estimated increases in the production of industries producing for both civilian and defense purposes. But many defense industries already are producing to their capacity; and while the process of enlarging their capacity will tend to increase carloadings, their inability meantime to increase their production will tend to restrict them. Furthermore, the way in which government expenditures, production for defense and priorities are being handled is restricting, or actually reducing, the production of many non-defense industries for civilian purposes.

It has proved much easier for this OPM authority to forecast a car shortage in 1941 than for industry to attain the estimated production that was to have caused it; and why should there not be the same result in 1942? Why assume that other industries which had relatively much less surplus capacity than the transportation industry when the defense effort began, and still have relatively much less, or none at all, will be able within the next year to increase their capacity and output so much more than the transportation industry? Of course, the government can create a shortage of railway transportation by failing, as it actually has this year, to afford the railways and the railway equipment and supply manufacturing industry the materials promised them, and by otherwise failing to co-operate with them. But if the government really intends to give them the co-operation to which they are entitled, and which civilian and defense needs require, it is difficult to surmise upon what ground it can be assumed by persons within the government that other industries will be able to outstrip transportation in increasing capacity.

Defense Traffic Has No Peak

In order for the demand for carloadings to be 50,400,000 in 1942, as estimated in the OPM memorandum, it would have to increase 17½ per cent over the *Railway Age's* maximum estimate of 43,000,000 for 1941. What large defense industries are estimating they will increase their production that much? Steel, the largest of them, is producing at a rate of 82,000,000 tons a year; to increase its output 17½ per cent would have to produce 96,000,000; estimates its 1942 maximum capacity at only 87,000,000; and does not expect a demand for that much. In view of developments during the last year, and present and prospective conditions, this paper confidently predicts that the OPM authority's estimate of the demand for railway transportation in 1942 will prove at least as excessive as has its estimate for 1941. Production for defense, like production for war, creates some traffic, but curtails or destroys other traffic. The increase in railway freight traffic in this country in 1917, the first year we were in the last war, was only 9 per cent, and in 1918 only 3 per cent.

But suppose the demand for railway transportation should increase in 1942 to 50,400,000 carloads. That would be an average of 970,000 carloads a week. Why assume, as the OPM authority does, that in October it would rise to a peak averaging 1,140,000 cars a week, or 17½ per cent more than the weekly average for the year? In 1925-1929, during which five years loadings averaged more than 1 million a week, loadings in the four peak weeks averaged only 15½ per cent more than average weekly loadings in each year. Furthermore, in those years the railways were handling only **commercial** traffic which rose to peaks 15½ per cent higher than average weekly loadings solely for **commercial** reasons. They are now handling both commercial and defense traffic, and presumably in 1942 will handle much more defense traffic in proportion to commercial traffic than in 1941. And defense production and traffic **are not subject to seasonal variations.**

Probable Demands in Fall of 1942

If we take average weekly commercial car loadings in January as 100, we find that they normally rise seasonally month by month to 127 in October. They then decline to 112 in November and to 96 in December, after

which they begin rising again. With a large and increasing amount of defense traffic being handled, there is certainly no reason for expecting that total carloadings will decline this year to 96 in December, and then steadily increase to 127 in October, 1942, or to a level 32 per cent higher than in December. In other words, even if we should accept the OPM memorandum's estimate that the demand for cars in 1942 will average 970,000 a week, there would be no reason for accepting its assumption that traffic in 1942 would undergo more than normal seasonal variations and rise to a peak in the fall of 1942 higher than a normal commercial seasonal peak. The peak in the fall of 1942 probably will not rise more than 10 per cent above the 1942 weekly average, in which case, assuming a 1942 average weekly loading of 970,000 cars, the 1942 peak will be only about 1,070,000 cars.

How Many Freight Cars Can Be Built?

But, it may be said, the railways have not now anywhere near enough freight cars with which to meet a peak demand for 1,070,000 cars a week, and it is very doubtful if they can get enough. Let us, then, analyze the problem presented. To load that many cars in a week at a ratio of one car loaded for each 1.55 railroad-owned cars in serviceable condition—a ratio that seems by no means unattainable—they would require 1,666,000 railroad-owned cars in serviceable condition. It seems not unreasonable to estimate, as the OPM memorandum does, that they will have to retire within the next year 60,000 of the about 1,600,000 cars in serviceable condition that they apparently will have in October, 1941, leaving 1,540,000 of them.

Assuming, as above, that they will require 1,666,000 next fall, they would then have to acquire—not 370,000—but 126,000 new cars before October, 1942. Can this number be acquired? Estimates of the present car building capacity of the country vary widely. Information that experts on the subject have given in reply to inquiries made by this paper indicate that the very maximum available present capacity of the car building companies certainly does not exceed 150,000 a year and that the railways might possibly be able to build one-tenth of this number in their own shops. And these maximum estimates are based on the assumption that the railways would so consolidate their orders as to make each order as large as practicable; and that there would be no interference with continuous operation by lack of materials, lack of labor or labor troubles. Owing partly to shortages of materials and labor troubles, the recent output of cars, in spite of large orders, has not reached 7,000 in any month.

Best Practicable Production and Utilization of Cars Required

The facts indicate that it would be extremely difficult to provide enough cars to load an average of 970,000 and a maximum of 1,100,000 a week in 1942 even if there should be produced the largest number that can be reasonably expected and efficiency in their utilization should surpass all records. As we have indicated, we do not believe that the OPM authority or anybody else has given or can give any valid reason for estimating that the demand for cars will average 970,000 a week next year; but, nevertheless, it is but too evident, in view of the narrow escape from serious shortages that the railways apparently will have within the next few weeks, the prospective continuing increase of traffic, and the reduction in car building capacity which has occurred within the last decade, that the following things should be done: First, the railways throughout the next year should keep every car building plant filled with orders so made as to afford opportunity for the maximum practicable production. Second, the government should spare no effort to so handle priorities as to assure that there will be no shortages of materials for car building. Third, management, labor and the government should adopt every practicable means of preventing labor troubles in car building plants. Fourth, railways and shippers should separately and in co-operation utilize every practicable means for increasing the number of tons loaded in each car and for keeping cars moving more of the time.

Best Available Means of Avoiding Car Shortages

The fourth means mentioned is much the most important, because it is the most certainly feasible means of preventing car shortages and can be used with much the greatest effect. The reason why there has been no car shortage yet in 1941, in spite of the great reduction of equipment within the last decade, is shown by the following figures: Average tons per loaded car in May, 1929, were 26.6, and in May, 1941, were 28.1. Average miles moved by each car daily were 32.9 in May, 1929, and 41.0 in May, 1941, an increase of 25 per cent. In consequence, average ton-miles per car per day increased from 549 in May, 1929, to 746 in May, 1941, or 36 per cent. It has been this increase of 36 per cent or more in the efficiency with which cars have been used in May and subsequent months this year which has enabled the railways to render more freight service than in 1929 with a greatly reduced supply of cars. There can be no question that the great increase in efficiency already achieved can be continued. Cars can be loaded heavier; they can be loaded and unloaded by shippers much more expeditiously; they can be handled by the railways in yards, and even on line, more expeditiously.

We have already quoted from the OPM memorandum the sinister statement, "These estimates assume, of course, no drastic change in the operating practices of railways through the intervention of the I. C. C. or other government agency." Undoubtedly, in spite of the very great increase of efficiency already achieved by "operating practices of the railways" (which the statement obviously implies government could improve) and by the co-operation of shippers, the New Dealers

would welcome an excuse for having government interfere with these "operating practices" and even assume railway operation. No excuse for this has yet been afforded. But that has not prevented numerous extreme and malicious forecasts of car shortages and criticism of private management for not having been forehanded enough to provide for the handling of a much larger traffic than has yet developed, or than apparently will develop. Every such excuse must continue to be avoided. It is of as vital concern to the shippers as to the railways that this shall be done; and, therefore, we believe that it will be done.

"You Can't Do Business . . . ."

There is a book going the rounds called "You Can't Do Business with Hitler"—the content of which is specific evidence presented with the purpose of substantiating the title. The thesis is that the present set-up of the German Reich is such that you can't make peace or transact normal business with it, with confidence that no unfair advantage will be taken.

Is there not a certain analogy in the position of Hitler's Reich in relations among nations, and that of the regulated trucking industry in the domestic transportation picture? The dominant powers in the regulated trucking industry do not want monopoly and coercion abolished in transportation any more than Hitler wants it abolished in international trade. They want to retain a pick-and-choose status—retaining the cream and leaving the other fellow the skim milk—just as Herr Hitler does.

They are no more content to let natural economic merit decide who will thrive in transportation than Hitler is to let natural economic forces determine the flow of trade on the European continent. Both Hitler and the dominant part of the regulated trucking business insist that *the coercive power of the state* be used to give them advantages, which the free play of economic forces would deny them.

Only recently the statement was made in the proposed truck merger case that the companies proposing to consolidate expect to save approximately 10 per cent in their operating costs. But no assurance was given that they would voluntarily give the public the benefit of these economies. Competition has been enchained so that it is not sufficiently strong to enforce the passing along of such savings to the public—and regulatory policy thus far has shown no disposition to do so.

These truckers seem to be saying, in effect: "We have here a profitable business built up, not on intrinsic economic merit, but on monopoly power donated to us by the federal government. We ask that this grant of monopoly power be increased. We no longer promise (as we used to do) to give the public the 'inherent economies' of truck service—because it is from exploiting monopoly power conferred by the federal government upon us, and not by extending the 'inherent economies' of truck service to the public, that we are deriving our profits."

One of the principal organizers of the proposed truck merger stated that one result of the move would be to reduce his salary from $74,000 per year to $36,000 per year. This appeared to be very liberal upon its face, but this man was drawing only $20,000 per year at the beginning of regulation. His company reported net profits of more than $500,000 for the fiscal year ending April 30, 1941, or approximately four times its *net worth* before regulation. It appears to have earned a return of about 40 per cent on the investment. The company's net worth today is conservatively estimated at ten times what it was prior to regulation.

There can be no reasonable criticism of the salary a man can secure for himself, if he gets his job by free competition in an open market. Under such conditions, a man is quite likely to get just about what he is worth, and to be worth about what he gets—be it $10 or a million. But with a closed corporation, operated as a cartel by the imposition of governmental power and given a semi-exclusive privilege to pick-and-choose cream traffic from other regulated but unprivileged transportation agencies—under such circumstances it would appear that earnings of principals (whether as salaries, dividends, or undivided profits) are a matter of proper public concern. The state has a right, and even a duty, to supervise its own creation.

No criticism of this particular individual is intended in the above citation; it is given merely to indicate a general condition which is unhealthy, and is not growing any more wholesome. These motor carriers, *while accepting none of the responsibilities to the nation's traffic as a whole which the railroads freely assume,* have increased their traffic, probably, about 100 per cent since the inception of regulation, largely at the expense of the railroads which *do* assume full responsibility for all classes of traffic.

Is the Interstate Commerce Commission performing its larger duty to protect the country's transportation service as a whole, when it paternalistically encourages a *selective* agency to undermine a "serve-all-comers" agency? And especially, is the I. C. C. doing its full duty when it expresses its fostering paternalism—not by stimulating its ward's "inherent" virtues, but rather an unnatural and mischievous monopolism?

Is there anything in the present set-up of regulated truck transportation to encourage the railroads in the belief that here is an arrangement with which they can enter into mutually-profitable relations? Is there anything left for the railroads to do—in their own protection or in that of the public interest—except to take independent action, relying on their own economic strength, and the rates they can afford to make, to get all the profitable traffic they can?

You can't do business with Hitler, or with anybody else who insists that you play according to Hoyle while he has his own private set of rules.

Progress in Steam Passenger Locomotive Utilization*

Many improvements have contributed to the great increase in the mileage per delay and the mileage between shoppings for classified repairs

By A. A. Raymond

Superintendent Fuel and Locomotive Performance, New York Central

THE increasing daily mileage of the steam passenger locomotive, some of which now operate as much as 20,000 miles a month, is the result of greater reliability and range. Many developments now under way indicate that groups of locomotives are capable and will be increasingly capable of maintaining a still higher average of working time per month. There is no present indication that the limit of utilization of steam power has been reached.

It is axiomatic that greater utilization can be hoped for only if the locomotive gives reliability of performance. The measuring stick of the movement of trains is the on-time performance, the success or failure of which is shown in daily reports of delays to trains owing to mechanical difficulties resulting in lost time that could not be made up.

Many improvements have been made in steam locomotives, such as decrease in weight per unit of power, one-piece locomotive bed, cylinders and frames cast integrally, refinement in design of various parts, water treatment, roller bearings, refinement in maintenance practice, and feedwater heating. These have increased materially both the reliability and the capacity of the machine.

Effect of Using Roller Bearings

To demonstrate the improvements due to roller bearings, the record is given in Table I for nine years starting in 1927 when all engine trucks were equipped with friction bearings.

About 1929, roller-bearing engine-truck applications were started in substantial numbers, and in 1934 practically all high-speed passenger locomotives had such engine trucks. At that time more than 14,000,000 miles per year were made with no delays chargeable to this cause. During 1940 with better than 19,000,000 miles there were no delays. In the last five years the locomotives made approximately 90,000,000 miles with only two delays which would indicate 45,000,000 miles per delay, whereas, in the first five years of the report, miles per delay averaged approximately 500,000, which means that the roller bearings *decreased* the liability of delays 90 times.

Fifty-eight of the class J or Hudson type (locomotives Nos. 5200 through 5454) locomotives are equipped with roller-bearing driving boxes and 196 of the earlier engines with friction-bearing driving boxes. Over an eight-year period there were 3,376 delays with friction-bearing driving boxes, or an average of 47 a year, and with the yearly mileage of approximately 14,000,000 this would mean 297,000 miles per delay. Roller bearings during the same period show no delays on the road, although for the last three years these locomotives have averaged 6,626,150 miles per year.

In the eight-year period (1933-1940) it is found that on tender trucks the roller bearings made 60 times the mileage of the friction bearings per delay. Trailer trucks with friction bearings, during the same period made 200,000 miles per delay, while with roller bearings there were 5,000,000 locomotive-miles per delay.

Perhaps the confidence the railroad has in roller bearings can best be described by saying that there are 350 locomotives equipped with engine-truck roller bearings, 309 locomotives with tender-truck roller bearings, and a total of 84 locomotives, including all the newer locomotives, with roller bearings on driving boxes.

Another improvement that has a direct bearing on utilization of power is water treatment. Frequently, it was necessary to wash the boiler on arrival but with full water treatment the number of days between washouts has been extended so that the majority of engines can be promptly made ready for service.

With the one-piece cast-steel bed many separate parts and several hundred bolts have been eliminated, all of this contributing further to the reliability of the machine and reducing enginehouse maintenance.

The Proof of Reliability

It may be said that all of the foregoing is true, but perhaps it has not been possible to take advantage of these improvements. To explore that possibility, the upper portion of Fig. 1 shows the average miles per serviceable locomotive-day for the last twelve years. This chart covers all of the locomotives of each of the classes handling all main-line traffic, that is, important trains, trains of less importance, and local trains, and providing the necessary reserve locomotives to insure the prompt operation of any extra trains or to meet any condition requiring more locomotives.

It will be observed that the older K-2 locomotives were averaging about 200 miles per day in 1928, but the K-3's were appearing in substantial numbers with an average of 270 miles per day, a material improvement. This average daily mileage for the K-3's continued for about a year. Then the J-1's arriving in substantial numbers immediately began to make 360 miles per day which has been maintained with an improvement in recent years.

It is interesting to note that in 1938 there were a substantial number of the latest class J-3's (Hudson

* Abstract of a paper presented at the railroad session of semi-annual meeting of the American Society of Mechanical Engineers, at Kansas City, Mo., June 16-19, 1941.

type) and that they almost immediately started making 450 miles a day which has been continued since.

At the bottom of Fig. 1 is shown the total main-line passenger-locomotive mileage made each year. For instance, in the year 1934 it totaled approximately 20,000,000 locomotive-miles, a very small portion of which was handled by the K-2 locomotives, a greater portion by the

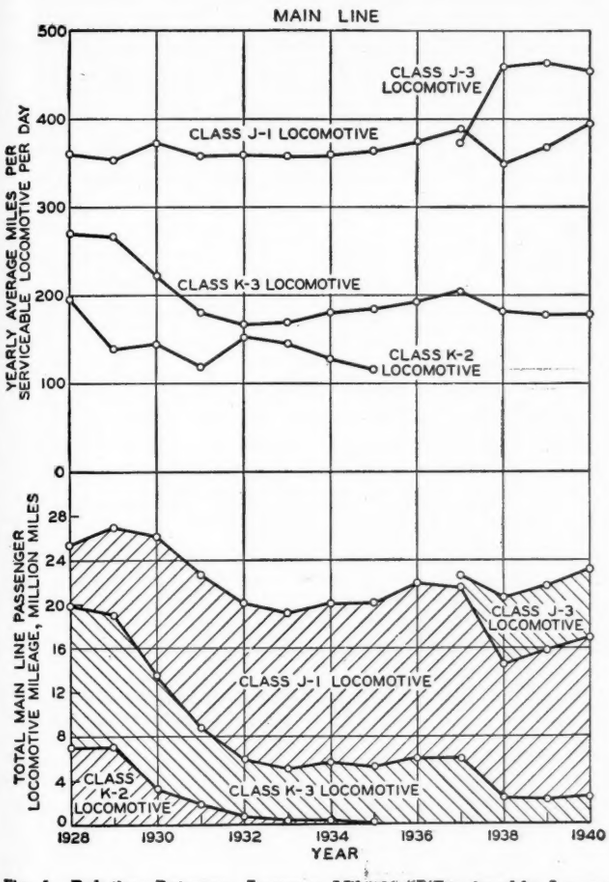


Fig. 1—Relation Between Average Miles per Serviceable Locomotive per Day and Total Passenger-Locomotive Miles

K-3's, but the largest percentage was handled by the class J-1's.

This additional information in the lower part of Fig. 1 is given to illustrate the fact that not only did the newer locomotives individually handle more miles, but the newer type of locomotive also handled increasing percentages of the total business available.

Sometimes it is asked if in former years the locomotives, possibly working on one division, did not, because of being turned back, on a regular train, make higher monthly mileage than locomotives are making now where they run through on many divisions. To answer this question attention is directed to Fig. 2 where the records have been surveyed for the last 28 years and where it is possible to study four classes of passenger locomotives handling main-line traffic.

In making this survey the total mileage made by each locomotive during each month was checked, and the figure illustrates the average miles of the 10 locomotives in each class each year which made the greatest total mileage in any one month. For instance, considering the K-2's, one locomotive might make high mileage in June and surveying July we might find two other engines which made high mileage, while in December we might find two more. These would be considered 5 of the 10 engines making the highest mileage in any one month during the year. The high utilization may be made by one locomotive this month and an entirely different locomotive next month.

It is observed that about the year 1920 the highest monthly mileage was under 10,000. At that time a considerable number of the new class K-3 locomotives came into service, and the average miles of the new class became approximately 14,000. Around 1929 the class J-1 locomotives were introduced and immediately began to make mileage in the 18,000-mile range. Then in 1938 a fourth class, the J-3, or latest group of Hudson-type locomotives in through passenger service were obtained in a substantial number and began making mileage close to 20,000.

It is interesting to note that when an improved class of power came into service, it not only started to make a record of its own but suggested ways to improve the performance of the locomotives already in service. The most striking example is the third and fourth classes of power. That is, on the appearance of the fourth class, the mileage of the third class was materially increased until both were fairly close together.

Mileages between classified repairs for all classes and types of steam locomotives on the New York Central Lines, East and West, increased from 75,573 in 1931 and 80,363 in 1937 to 110,213 in 1939, largely because high mileage was obtained from the Hudson type engines. For 37 locomotives of this type shopped for classified repairs in 1937, the average mileage was 221,000. Thirty-one locomotives exceeded 200,000 miles, and one reached a maximum of 276,761 miles.

How Full Utilization Is Insured

To insure full utilization of locomotives certain systems have been developed and may be considered under the following four headings:

Checking Passenger Stations for Surplus Locomotives

At each passenger terminal station whether large or small a study is made periodically covering a spread of two weeks and all arriving engines and departing trains

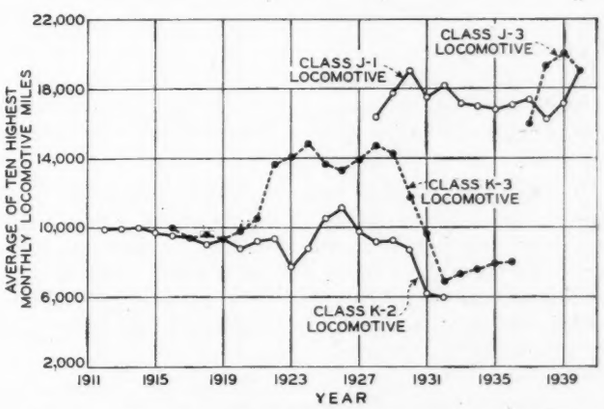


Fig. 2—Performance of 10 Locomotives Making Highest Monthly Mileage During the Year

are charted. As passenger trains run on a regular schedule, this system is found to be practical. Next, a schedule is made to use, if possible, the arriving locomotive on a departing train regardless of direction.

Checking Engine Houses for Surplus Locomotives

If there are too many locomotives in service, the extra locomotives can only be at the enginehouses, perhaps all

at one terminal but more likely at several scattered terminals, so that it is essential to make a check of enginehouse conditions. To do this, the arrival and departure of each locomotive at an enginehouse is charted, and considering the performance of the necessary work at the enginehouse, the expected average turning time at the house is established. The enginehouse in this case can be considered as a store, where profits can be made from goods only if there is a high percentage of turnover of the stock on the shelves. Stock beyond a certain amount is a dead loss; it is a so-called dead stock—not moving—so that above the number of locomotives required at the house (this depends on the reliability of the locomotives continually arriving), any surplus is a loss not only of the approximately $250 per month that it costs to maintain a locomotive ready for service, but also of the fuel represented by the slower movement through the enginehouse (congestion resulting from interference) and of the overhead on the investment in more locomotives than are necessary.

used just by listening to the exhaust. When it is necessary to get every pound of available tractive force from a locomotive, experience has demonstrated that it is necessary to give the engineman some indication by which he will know whether he is working the engine at the maximum capacity for the varying speed. To illustrate, reproductions of actual recording tapes are shown in Fig. 3.

These illustrations were made of 10-, 12-, and 14-car trains, and it will be noted from the curves in solid lines that the distance before the train attained full speed of 70 m. p. h. was 8¼, 12, and 17 miles, respectively. The increase in distance might be expected with increasing weights of trains, yet when specific studies were made in the territory it was found that the heavier trains could be accelerated to full speed in 6.1, 7.6, and 8.2 miles.

While acceleration only has been shown, getting over the road in the minimum amount of time is affected also by the rate of deceleration, although in general more

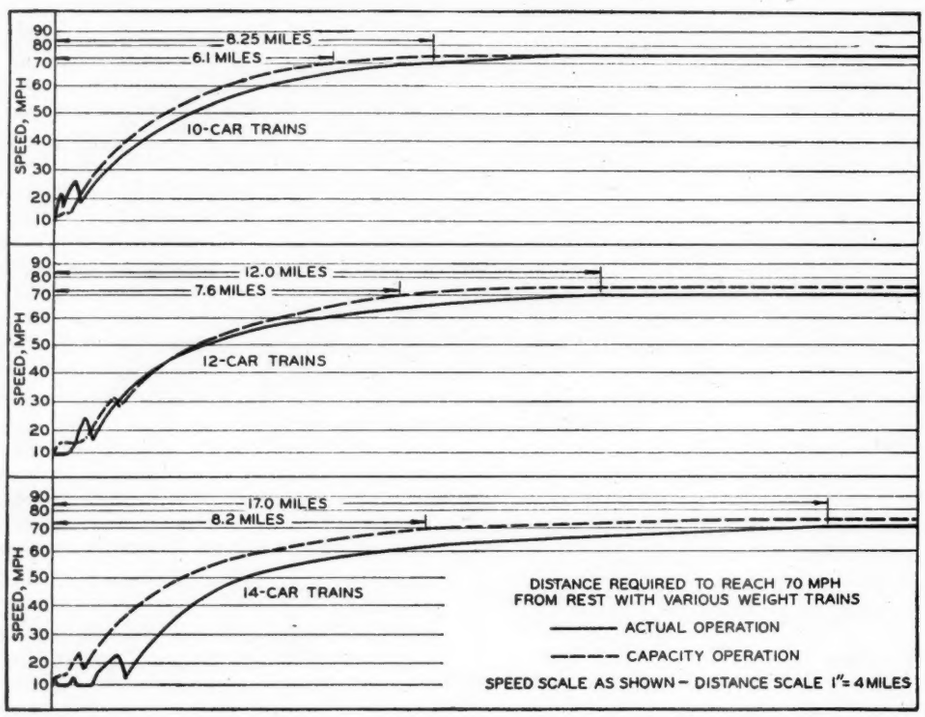


Fig. 3—Acceleration Records of 10-, 12- and 14-Car Trains

The average turning time at each enginehouse, of course, varies from day to day during the week. The peak traffic ordinarily occurs between Friday and Sunday. On these days there will be a short turning time but the normal figure can readily be established. When the layover time is above the established fair figure the storing of power is started.

Obtaining Capacity Performance from the Locomotive

There have been radical changes in locomotives in recent years. Counterbalancing has been improved; where an engine used to ride hard when working at capacity, it now rides much better. Exhaust tips have been enlarged; where the engine used to "bark" off the exhaust with a loud tone when worked at capacity, the exhaust is now softer. Both of these changes indicate to the engineman that he is not working the engine as hard as he did in previous years. It has become difficult to estimate the capacity at which a locomotive is being

time is lost accelerating than decelerating. Fig. 4 shows the time that can be saved by proper braking and accelerating after a slowdown to 30 m. p. h.

It will be noted that decelerating time has been reduced by one half and that accelerating time can be reduced by almost the same amount with the locomotive worked at maximum capacity. Many locomotives will be operated with the minimum loss of time where there is a definite indication for the engineman as to how to operate at maximum capacity.

It may seem that accelerating at maximum capacity is a minor item, but with long runs the accelerations necessary because of stops and slowdowns may, upon analysis, be found of such frequency as to make this an important item. On the New York Central, daily checks are made of tapes or charts from locomotives handling some 700 train divisions. It appears that some such definite checks are essential to obtain from a locomotive what has cost thousands of dollars to build into it and many more thousands of dollars to keep in good operating condition. The particular value of these charts

is that instead of saying to the engineman "could you have accelerated at an increased rate?" he can be told, "If your speed is 70 m. p. h. five miles out, you can save two minutes on the running time." This is more effective than saying, "The train ought to be accelerated more rapidly." It is estimated that it costs a ton of coal to make up a minute by accelerating faster.

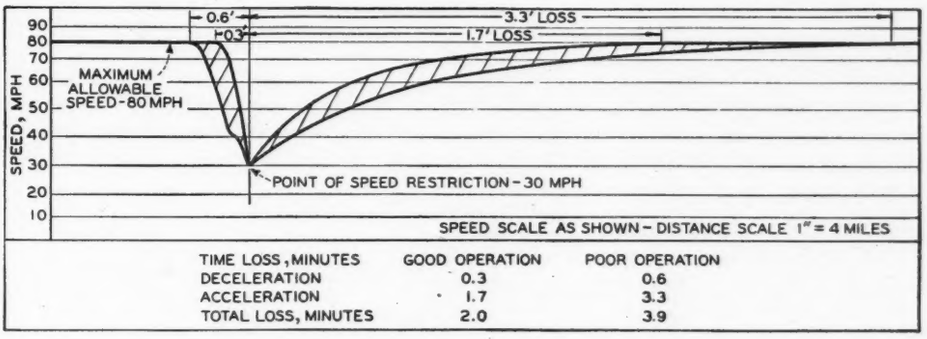


Fig. 4—Time Loss Due to a Local Speed Restriction with Good vs. Poor Operation

The J-3 has greater horsepower than the J-1 and K-3 locomotives and maximum horsepower is produced at higher capacity. This permits faster acceleration and shortens the average cutoff, as running cutoff can be used for a greater percentage of the trip. Acceleration is more rapid at higher speeds and maximum running speeds are more easily maintained. The J-3 can haul more cars on the same schedule than is possible with the older types of locomotives, or it can make better time with the same weight of train, and it seems essential that this accelerating value be obtained.

As the efficiency of the locomotive is improved, it seems almost necessary to study the operation of the different locomotives with a recording tape, thus determining the economical cutoff to use under different running conditions. After a train has reached full running speed the engineman should be encouraged to shorten the cutoff just as much as is practicable in maintaining the schedule. Education in the economical use of the improvements which are built into the locomotive is very essential.

Supplying Coal and Water for Long High-Speed Runs

Because of the weight of water required, it is generally impracticable to carry enough water for the long run from Harmon to Chicago. However, some roads, such as the New York Central, have track pans, and experience has shown that adequate tender capacity is about 16,000 gallons.

In general, it is easier to supply water than coal, because water can, where available, be piped conveniently and arrangements can frequently be made to take water at regular stops where crews are changed by having a supply and a standpipe large enough to fill a tender in the three minutes which the train should be standing still. Sometimes the lack of the right kind of water supply makes this difficult and expensive.

A study made for the last 11 years (Table II) indicates the increasing amount of coal required. These figures include both the coal used in road operation and the coal used at the terminals.

In 1932, when the full fleet of 205 class J-1 locomotives was in service, the scheduled time of important trains was sharply reduced, two hours being cut from the schedule of the Twentieth Century Limited between New York and Chicago, and proportionate amounts from the time of other main-line trains. In succeeding years, additional reductions were made until in 1935 the schedules of New York-Chicago and New York-St. Louis trains were approximately two hours less than prior to 1932, and the Century schedule was cut to 16½ hr., with corresponding reductions on intermediate runs. These reductions in the running time of heavy trains were made possible because of the ample reserve power in the locomotive.

In 1938, the schedule time of the Twentieth Century Limited was reduced to 16 hr. and the schedules of many through main-line trains between New York and Chicago were again shortened, the reductions ranging from 30 min. to one hour, with proportionate reductions in schedule time between intermediate points. In 1940, still further improvements were made on some schedules.

As a matter of interest, for 15 system main-line trains, the average schedule reduction from 1926 to 1940 was nearly three hours, representing an increase in average over-all speed of about 8 m. p. h., although in that period the maximum permitted speed had been increased only from 70 to 80 m. p. h.

Table I—Average Mileage Per Cutout of New York Central Main-Line Passenger Locomotives Due to Hot Engine-Truck Journals

Before Application of Roller Bearings on Engine Trucks
(Principal type of passenger locomotives in use being the K-2 and K-3)

Year	Miles per delay
1927	373,295
1928	814,469

All Important Passenger Locomotives Equipped With Roller Bearings

(Most of the mileage made by the Hudson-type locomotives)

1934	14,486,923 (No delays this year)
1935	15,480,723
1936	15,754,913
1937	17,624,429 (No delays this year)
1938	19,261,201 (No delays this year)
1939	19,379,594
1940	19,780,391 (No delays this year)

The introduction of the J-3 class with increased power had a beneficial effect in reducing train-miles by handling more cars per train. On the New York Central Lines, East and West, while the passenger-car miles had decreased, owing to the depression, from 295,022,563 in 1930 to 225,832,083 in 1939, or 23 per cent, the train-miles had decreased 26 per cent from 31,566,924 to 23,261,971 even though the decrease in passenger business, which accompanied the decrease in all business, has tended to reduce the number of cars in a train. Expressed in other terms, a saving of more than 900,000 train-miles was realized in 1939 as compared with 1930 by increasing the car-miles per train-mile from 9.35 to 9.71.

This will explain the reason for the increasing amount of coal used by main-line passenger power. Summariz-

ing, this increase is the result of heavier trains, faster schedules, air-conditioned equipment, and the like, and indicates what should be considered in determining ways and means of obtaining longer runs between coal stops or cutouts for fuel, for higher utilization. In this connection attention is called to Fig. 5, which shows the

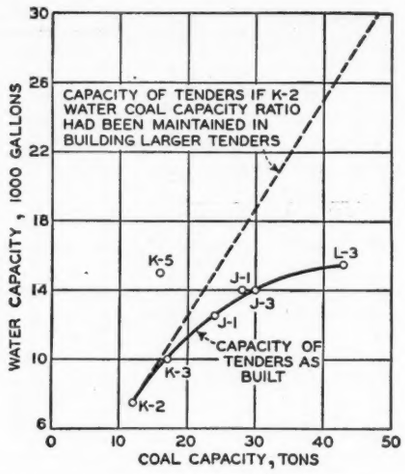


Fig. 5—Increase in Capacity, by Locomotive Class, of Locomotive Tenders, New York Central System, 1907-1940

coal and water capacities of the locomotive tenders under consideration. To the graph has been added tender proportions of the latest facility, a combination passenger and freight locomotive just recently put in service, the tender of which holds 43 tons of coal.

The solid line in Fig. 5 connects the coal and water capacities of tenders actually in operation, while the broken line shows what the tender capacities would be if the ratio between the coal and water capacities of the original class K-2 locomotive had been continued in the later classes. It will be observed that the tendency is materially to increase the proportionate amount of coal carried. This trend in tender design has resulted from the installation of sufficient track pans with which to maintain service with a tender capacity of about 16,000

Table II—Average Passenger Locomotive Mileage Per Ton of Coal Disbursed

NEW YORK CENTRAL MAIN LINE, HARMON-CHICAGO
(All classes of passenger locomotives.)

Year	Average locomotive-miles per ton of coal
1930	19.26
1931	18.85
1932	17.95
1933	18.30
1934	17.73
1935	17.43
1936	16.26
1937	16.12
1938	16.01
1939	15.55
1940	15.14

gallons. In other words, 16,000 gallons is enough for train operation between track pans.

As will be noted from the foregoing tables and charts, because of faster trains, increased train weight, and air-conditioning equipment, the fuel consumption for passenger locomotives is nearly a ton every 15 miles. Of course, we must realize this figure covers the average for the year, whereas, the consumption is higher in winter and lower in summer. It covers all weights of trains, while more emphasis should probably be placed on the heavier trains which tend to increase the fuel consumption per locomotive-mile. It should be remembered also that the figure includes terminal as well as road fuel. But as a whole, the operation is getting close to 15 road-miles per ton of coal for the principal trains, and it will be appreciated that in arriving at the final terminal there must be some coal left on the tender for emergencies. Considering all these items, it is thought that about 75 tons of coal would be required to insure through movements with heavy trains under all conditions, both winter and summer, from Harmon to Chicago. A locomotive with a tender of this capacity could run from Harmon to Chicago without the necessity of stopping for either water or coal. The only other items to be handled would be the accumulation of ashes, and the disposal of ashes could be arranged in various ways.

Summary

In summarizing the last 11 years it is found that the possibility of passenger locomotives' making high mileage per month has been increased 27 per cent. Reliability of certain parts, such as engine-truck bearings, has been increased 90 times, the coal supply of the locomotive has been increased 2.4 times, and plans are being made to provide more than three times the coal capacity of the locomotives used in 1928.

To obtain greater utilization of passenger locomotives, it is necessary not only to increase the number of hours per day the locomotive is in service on the road, but also to decrease the out-of-service time required either for daily inspection or for reconditioning. The ultimate goal is to have a minimum number of locomotives producing the maximum amount of service.

The increase in utilization is a direct result of the improvements in locomotive construction and maintenance insuring the necessary reliabilty in servce. It seems only proper to suggest some hope for further improvements that are apparently desirable, not only for more efficient operation, but perhaps, of much greater importance, for their influence on the continuation of railroad passenger business. However, it should be realized that the public need for transportation can only be satisfied by the railroads if their speed is greater than that of their competitors.

While the utilization of locomotives is improving, there appears from the records given in this paper to be a definite indication that greater utilization is practical.

* * *

The Maine Central Crosses a Curved Steel Trestle Near Its Summit in Crawford Notch, N. H.

Rail Problems Get Attention In Three Important Studies

Present-Day Traffic Demands Have Presented New Rail Problems to Roadway Maintenance Officers

Details are given on tests of corrosion in tunnels and of vertical stresses in web sections, and the causes and correction of corrugation are also analyzed

RAIL corrosion in tunnels, rail corrugation and stresses in the web sections of rails comprise three important phases of the general problem of rail maintenance which were subjected to searching analysis and study in reports or papers recently compiled by three members of the American Railway Engineering Association. These reports consist of a description of the tests, and their results, that were made in a study of the corrosion of rail and track fastenings in the Moffat tunnel, by A. E. Perlman, chief engineer of the Denver & Rio Grande Western; a discussion of rail corrugation by H. H. Morgan, manager, rail and track fastenings department, Robert W. Hunt Company; and a report on field measurements of stresses in web sections of rails, by Dr. A. N. Talbot,* professor emeritus of the University of Illinois.

Abstracts of all three of these discussions are presented below.

Many Corrosion Tests Made in Moffat Tunnel

By A. E. Perlman†

Corrosion of the rail and fastenings in the Moffat tunnel has presented a serious problem. This tunnel is 6.21 miles in length and is used jointly by the Denver & Salt Lake and the Denver & Rio Grande Western. At the time the tunnel was constructed the track through it was laid with 110-lb. rail, the laying of this rail being completed in January, 1928. This rail was removed in June, 1938, because of running-surface corrosion and wear, and corrosion-fatigue breaks of the rail through bolt holes. The track structure is now composed of 66-ft. lengths of 112-lb. RE section rail, butt-welded into continuous lengths by the Thermit process.

These Methods Investigated

An investigation of the corrosion problem in the tunnel was started early in 1938 and still continues, both in the field and in our laboratory, where Ray McBrian, engineer of tests, W. B. Leaf, research technician, and L. C. Atchison, chemist, have spent considerable time in the study. Most of the investigation has been conducted by the use of weighed and measured test pieces. In general, the methods investigated can be divided into five classes:

1. Use of protective coatings of a non-metallic nature
2. Neutralization of corrosive stack gases
3. Use of corrosive-resistant alloys
4. Use of sprayed or plated metals
5. Cathodic protection
   (a) Non-metallic coatings

Coatings about $\frac{1}{32}$ in. thick of various organic-base commercial rust-preventing materials were tested. Also lubricating oil, and oil plus 5 per cent hydrated lime, were investigated, as were various paints. All of these coatings were penetrated in from three to six weeks. Since none of them could be kept on the running surfaces of the rails, the exact values of the various proprietary rust-preventing compounds were not determined. Obviously, if the running surface of a rail of standard shape cannot be protected, it is a waste of effort

* This report was prepared by Dr. Talbot in his capacity as chairman of the Special Committee on Stresses in Railroad Track. He has since retired from this position and the committee has been dissolved.

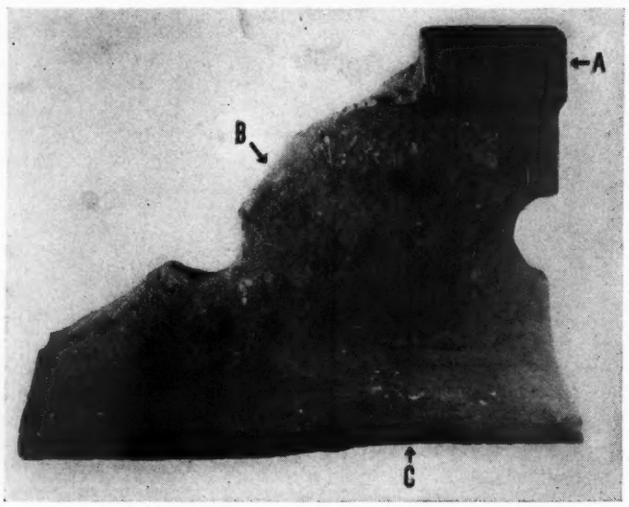
† Chief Engineer, Denver & Rio Grande Western.

to protect the web and base, since the rail will have to be replaced after ⅜ to ½ in. of metal has been lost from the head.

Early in the investigation it was thought that sulphur dioxide might be a major corroding agent. To counteract this agent, all the freight engines operating through the tunnel were equipped with lime feeders so that sufficient lime to react with all the sulphur in the coal burned in passing through the tunnel could be blown into the firebox and out through the stack. Weighed test pieces showed that the ratio of corrosion was not reduced in any measurable degree as a result of this expedient. Moreover, the lime made a slippery deposit on the running surfaces of the rails, thus adding to operating difficulties.

Corrosion-Resistant Alloys

Most of the so-called corrosion-resisting steels depend upon the protection offered by a more or less dense coating of the products of early corrosion. However, the running surface of the rail is continually subject to the initial corrosion rate, since each train will remove the products of previous corrosion. Ferrous alloys investigated included USS Cor-Ten, USS Man-Ten, 0.28 per cent copper, standard rail steel, structural iron, special heat-treated rail steel, and wrought iron. The corrosion rates of all of these were the same, within the limits of variation of several test pieces of the same material. No ferrous alloy short of 18-8 (18 per cent chromium, 8 per cent nickel) will withstand the corrosive action of the tunnel gases. This material was found to remain untouched after being exposed in the tunnel for 16 months. Such materials as Everdur bronze, copper, brass, and zinc are corroded only 5 to 25 per cent as rapidly as steel.



Effects of Corrosion and Abrasion

At "A" the reduction of head metal was due to a combination of corrosion and abrasion. A corrosion fatigue break, occurring at the end of the rail, is shown at "B". At "C", the base metal has been considerably reduced by corrosion.

It is recognized that coatings of metals positive to iron will protect the iron, even though the coatings are not continuous over the iron surface. Accordingly, a laminated test piece, consisting of 9 bars, each ¼ in. by ¼ in. by 2 in. in dimensions, placed side by side, with a piece of zinc at each edge, was exposed in the tunnel. The average annual loss of metal from the laminations ranged from 0.0166 in. to 0.0178 in., while the loss from a similar set of pieces without the zinc at the sides was from 0.0206 to 0.021 in. Thus, the zinc decreased the amount of corrosion about 20 per cent. Therefore, a 30-ft. section of rail was sand-blasted and zinc was sprayed on the sides of the ball. However, measurements made monthly over a period of eight months at ¼-in. intervals on treated and untreated rails showed no difference in the loss of metal.

It is known that underground structures can be given a high degree of protection against corrosion by cathodic means. In this form of protection the structure is surrounded by an electrical conductor, and protection is given only at points where the electric current leaves the surrounding conductor and enters the surface to be protected. Since the rail in the tunnel is continually wet, it was felt that, if this surface film of moisture could be used as a conductor, protection could be given the rail. To try this theory, four composite test pieces were made and tested. Two such composites were placed where they received water dripping from the ceiling of the tunnel, and two were placed a short distance away where the only moisture present was that from the air and passing trains.

The results were discouraging. Under the water drip, from 17 to 33 per cent protection was given by the cathodic method, the degree falling off as the distance from the drain wire increased. No protection was afforded the "dry" pieces. Consequently, cathodic protection would be effective only if all the rail were under a continuous spray of water, and drain wires were placed every few feet. The degree of protection then would amount only to 33 per cent or less. Obviously, this method is not economical.

Conclusions

The results of the investigation to date show that the running surface of the rail cannot be adequately protected and that the various non-metallic coatings are penetrated too quickly to permit them to be of any practical value. At present, it would appear that the only economical and practical way of reducing the cost of rail losses due to corrosion is to provide a special rail section. This section should have ½ in. or more of additional metal on top of the head to allow for abrasion and corrosion. It would then last about twice as long as the standard section, since rails of the latter section must be replaced after the loss of about ½ in. in the height of the head.

What Causes Rail Corrugation

By H. H. Morgan*

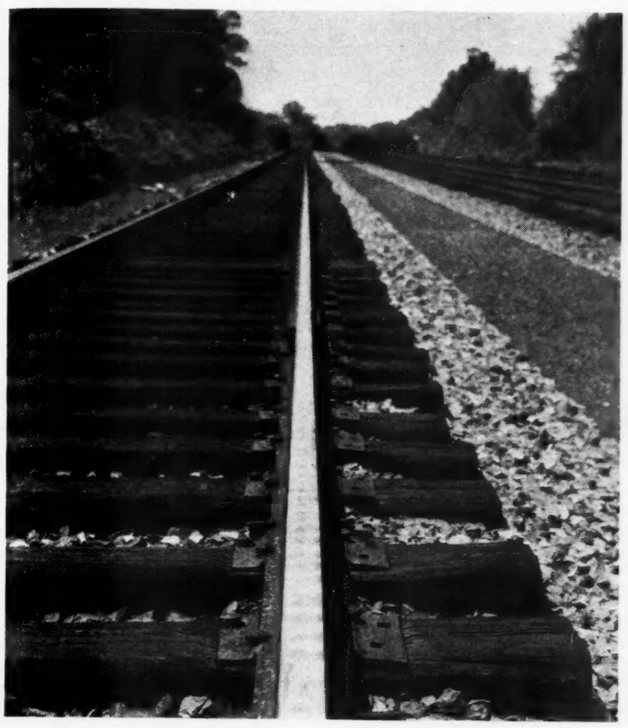
Rail corrugation is a phenomenon that occasionally develops in the running surfaces of rails in service. In considering this problem, one must give recognition to the extensive investigation and study of this matter that have been carried on by engineers of the electric railways for upwards of 20 years. Their work has disclosed many ways in which the rate and degree of corrugation can be reduced. Also, they have discovered the basic cause of corrugation, although they have found no way of eliminating it entirely.

Corrugation on Tangent Track

The most serious form of rail corrugation is encountered where it develops uniformly over continuous stretches of tangent track. Many causes contribute to

* Manager, Rail and Track Fastenings Department, Robert W. Hunt Company.

this particular type of corrugation, but these are secondary to what may be termed the *basic* cause. The basic cause of rail corrugation in continuous stretches of tangent track is a synchronized vibration of the wheels and the rail and its effect on their contact surfaces. When the character of the equipment and of the track structure are such as to produce the same frequency at a certain speed, a synchronous vibration of both the wheel and rail in their contact surfaces takes place. The result is that a very substantial increase occurs in the intensity of the pressure between the wheel and the rail.



An Example of Rail Corrugation in a Well-Developed Stage

Even under usual service conditions, it is known that the intensity of pressure in the contact area of the wheel and the rail is very high. Therefore, when the intensity of pressure is further increased by synchronous vibration, it is not surprising that stresses of such magnitude may be attained as to subject the rail to marked deformation in the zone of the vibrations, where the intensity of pressure is highest. However, it must be recognized that rail corrugation takes place only when there are repeated passages of equipment, accompanied by the same synchronized vibration.

Owing to the fact that speeds of rolling equipment have increased, synchronous vibration is becoming more prevalent in steam railway service. The fact that the speeds are higher is not directly pertinent to the matter of synchronous vibration, but a greater range of speeds affords greater likelihood that, with particular equipment and a given track structure, a speed will be found at which the vibrations of the equipment and of the rail will synchronize. Also, we suspect that rail corrugation in steam railroad service will become more common as a result of the increases in axle loads that have occurred. More important, perhaps, is the fact that with the greater speeds, the frequency of vibration is greater and the intensity of stress is higher, because the impact is greater with the more rapid application of the loads imposed by vibration.

Apparently, the only practicable means of correcting synchronization on stretches of track that develop corrugation is to stop the latter phenomenon at an early stage by some adjustment of train speed (or sometimes of the direction of traffic) so that the synchronous condition will not be continuous or persistent—in other words, set up a condition which will result in "ironing out" the corrugation as fast as it appears.

When considering the intensity of pressure in the contact area between the wheel and rail, there are two ways in which the resistance to deformation resulting from these intense pressures can be increased. One of these is to increase the yield strength of the rail steel and the other is to increase the contact area between the wheel and rail, so that the intensity of pressure is less. In steam railway service, under existing A. R. E. A. specifications we have secured as high a yield strength in rail steel as is obtainable in the "as-rolled" condition of carbon steel. It is possible that the use of alloy steels may increase the likelihood of a higher yield strength, but experience with semi-alloy steels, such as intermediate manganese steel, was not satisfactory. Full alloy steels or other semi-alloy steels have been considered at times, but economically they are not usable. Attempts have also been made to heat-treat the full lengths of rolled rails, but so far this method has proved impractical commercially.

Turning to the matter of increasing the contact area between the wheel and the rail, there are many instances where this has proved effective in electric railway service, and this is suggestive of similar results in steam railway service. On the Pittsburgh Railways corrugation was almost eliminated by widening the gage slightly. By this expedient, the running line of contact is moved nearer the centers of the rail heads, the flow of metal is restricted and the area of contact is increased. Many other electric railways have secured the same results in various ways such as by canting the rails, or by securing a rail-head contour that corresponds more closely to that of the wheel treads, or by flattening the rail head to obtain a larger contact area. Also there is a marked tendency to consider cylindrical wheel treads rather than coned wheel treads.

Other Causes

There are other causes of rail corrugation which appear to be of secondary importance. Perhaps of first importance among these is the condition of the rail head as delivered from the mill. So-called rough heads, of course, present an unfavorable appearance during the first few days after installation, but it is the writer's observation that after a few days to two weeks of service this condition disappears. There have, however, been a few cases where a condition similar to rail corrugation has been rolled into the rails, and has definitely been traced back to the manufacture. In such instances the corrugation can be eliminated by grinding, with no likelihood that it will reappear.

There are various other defects or irregularities that produce local corrugation. For instance, any individual depression or drop in the running surface of the rail naturally reacts on the spring suspension system of the equipment, and there is a reverse or counter action that produces a secondary impression. In other words, a corrugated condition can develop in both directions, assuming traffic moves both ways, from a faulty spot in the track. Usually these corrugations are more pronounced at the fault and gradually disappear—in some cases in less than the length of a rail.

Also, there is a general condition on curves that may provoke corrugation. When rails follow curved track

there must naturally be a slip on the outer rail, or a drag on the inner rail, or a combination of both, which may cause chattering. This may result in some attrition or abrasion of the rail, which may express itself as a corrugation. Where curves regularly show corrugation, the simple correction is to eliminate or reduce the friction as much as possible, and this can be done by rail and flange lubrication.

Field Tests Reveal Stresses in Rail Webs

By Dr. A. N. Talbot*

In January, 1940, the maintenance of way department of the Denver & Rio Grande Western discovered cracks in the webs of a number of 112-lb. rails which had been in service only eight months. As the appearance of such cracks seemed to be a new phenomenon, and information on the cause was not known or not available, the Association of American Railroads, at the request of the railroad, arranged for the research engineer of the Engineering division and the staff of the Committee on Stresses in Railroad Track of the A. R. E. A. to conduct tests in the early summer of 1940 in an effort to find the cause of the trouble. In the fall, tests were also made on the Illinois Central.

Preliminary analysis of the problem suggested a bending action in the web of the rail, developing high compressive bending stresses, which, in connection with the direct vertical stresses, might result in excessive compressive stresses at one face and lower compressive stresses or even high tensile stresses in the other face. The cracks were presumably fatigue cracks that had developed progressively. Two possible causes of bending action in rail webs came to mind, namely, (a) eccentricity of wheel bearing on the rail head, and (b) application of a lateral force by the wheel at the rail head.

[At this point Dr. Talbot presented a mathematical analysis, including the derivation of formulas, of the stresses occurring in rail webs as a result of direct wheel loads, eccentric wheel loads and lateral forces applied at the rail head.—Ed.]

Tests on the D. & R. G. W.

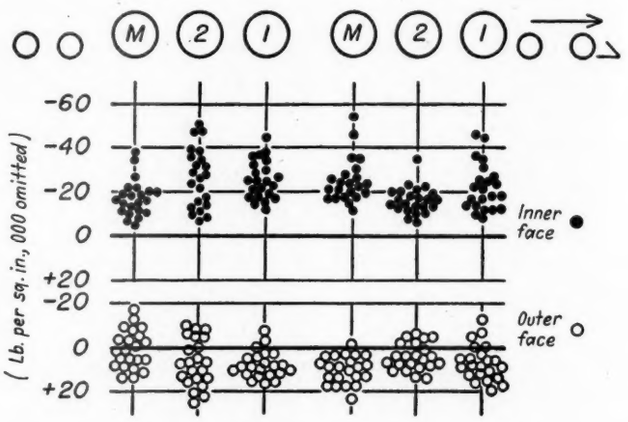
The tests on the D. & R. G. W. were made on the single-track main line east of Green River, Utah. The track appeared to be in very good condition. Double-shouldered tie plates on machine-adzed ties gave a reasonably uniform rail cant, ranging from 1 in 35 to 1 in 50. The position of the shiny area on the rail head showed that the general wheel bearing was toward the gage side of the rail.

The locomotives used in the tests were largely of the 3,700 class (4-6-6-4, mallet type), these giving perhaps two-thirds of the records. The other third was divided between the 1,700 (4-8-4) and 1,600 (4-8-2) classes. Driving wheel weights ranged from 33,000 to 37,000 lb. Three runs were obtained with locomotives of the 1,800 class (4-8-4). In addition the two locomotives (3,700 and 1,804) were used to make special test runs.

The principal test measurement was that of the stresses in a vertical direction in the outer and inner faces of the rail webs. The measurements were made by carbon strip gages applied directly to the two opposite faces of the web. On an accompanying chart are plotted vertical stresses measured in both the inner and outer faces of the rail web at one gage location for the 3,700 class locomotives operating westbound in regular traffic. This gives an example of the distribution of stresses at the several driving wheels for a number of runs.

The place or location at which a gage or gages were placed is termed a gage location. In the tests to be discussed first, records were made at 13 such gage locations on a stretch of tangent track with a descending grade to the west, giving conditions conducive to fast speeds in the westbound direction.

Three of these locations were on the south rail, of which two were on new rails at points where cracks had been reported in the replaced rails. At these three gage locations many excessive vertical compressive stresses were found in the inner faces of the webs under regular traffic. Of about 350 records of stresses from driving wheels at the inner faces of the webs at these three locations, 14 per cent were above 35,000 lb. per sq. in., 6 per cent were above 45,000 lb. per sq. in., and 1 per cent were as high as 55,000 lb. per sq. in. The tensile stresses



This Chart Shows Vertical Web Stresses in 112-lb. Rail at a Gage Location on the D. & R. G. W. The Records Were Made Under the Wheels of 3,700 Class Locomotives in Westbound Traffic Traveling at 50-60 M. P. H.

in the outer web faces were as high as 25,000 lb. per sq. in., with about 8 per cent of the values between 15,000 and 25,000 lb. per sq. in.

For test locomotive 1804 (a modern 4-8-4 passenger locomotive) at speeds of 5, 50 and 70 miles per hour (4 runs at each speed), no individual wheel on either the south or the north rail gave a vertical compressive stress as great as 30,000 lb. per sq. in. in either the inner or outer face of the web. The results show that the vertical stress records for this locomotive were low or moderate and uniform, and reasonably similar for the three gage locations. They may be contrasted with the values obtained with locomotive 3700.

On the Illinois Central

The tests on the Illinois Central were made on double-track main lines at perhaps 32 different spots in three main groups several miles apart at places south of Mattoon, Ill., and at a location north of Gilman, Ill. The tracks were in fairly good condition. The cant of the rail, intended to be 1 in 40, varied more or less from place to place and was mostly about 1 in 25. The records were taken under regular trains. Perhaps 500 driving-wheel records of vertical stresses were made in these test for each face of the web of the rail.

To learn something of the effect on web stresses of

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various conditions, such as the wear and cant of the rail and centralized bearing, additional tests were made on the D. & R. G. W. (a) with the 112-lb. rail canted 1 in 20 (b) with the rail ground for a short length to give a central bearing on the rail head, and (c) on 110-lb. rail that had been in service for some time and had become worn. [After giving a detailed account of these tests, Prof. Talbot presented a comprehensive analysis of the manner in which the direct stress and bending stress are distributed along the rail web in both directions from the point of bearing of the wheel load.—Ed.]

Summary of Results

The main results of all of the tests may be summarized as follows:

The position of the centroid of wheel bearing on the rail head evidently exercises a most important influence on the magnitude of the vertical bending stresses developed in the web of the rail; eccentricity of wheel bearing is doubtless generally the principal source of the bending action found in the tests. These bending stresses may be considerably greater than the direct stresses. It is apparent that even under good track conditions and under ordinary operating conditions of the wheels of locomotives and cars, variations in the eccentricity of the wheel-load bearing are to be expected.

In the tests on the D. & R. G. W., vertical compressive stresses of considerable magnitude were found under the wheels on the inner faces of the webs, and tensile stresses of lesser magnitude on the outer faces. These larger values were found on the left rail at the high westbound speeds under regular traffic. Locomotive 3700 (4-6-6-4) gave many high stresses on the left rail at the higher speeds westbound and much lower stresses on the right rail, while at speeds of 5 miles per hour the high stresses were found on the right rail and moderate stresses on the left rail. Locomotive 1804 (a newer 4-8-4 passenger locomotive) gave moderate or small stresses on both rails at both slow and fast speeds. Evidently, the principal source of the high web stresses on this road is the eccentricity of wheel bearing on the rail.

In the 112-lb. rail on the Illinois Central, the higher of the compressive web stresses found were moderate in magnitude (except for four values) and relatively infrequent, and the tensile stresses were usually relatively small. The relatively large cant of the rail, mostly 1 in 25 at the gage locations, contributed to the moderation of the web stresses. With 110-lb. rail, laid in 1924 and worn and canted in a way to conform to the usual wheel coning, and with the appearance of the head indicating a small eccentricity of wheel bearing, moderate web stresses were the rule. In 90-lb. rail laid in 1920, and having the rail head worn to an inward slope approximately 1 in 17, the web stresses were all moderate or small.

Although many vertical web stresses of considerable magnitude were recorded in the tests made on 112-lb. rail on the D. & R. G. W., the actual percentage of high compressive stresses developed is not great. It is not thought that the high compressive stresses developed in the inner face of the web, alternating on that face perhaps to zero or to small tensile stresses, bear any known relation to the formation of cracks in the outer face. It is evident, however, that higher stresses are frequently developed in the rail webs than had been supposed, and in many cases these vertical web stresses are relatively higher than the longitudinal bending stresses existing elsewhere in the rail. Whether other sources of strains in the rail were present and superimposed on the measured stresses is not known. This matter is worthy of further investigation.

Chicago-Florida Lines Release Cars for Defense

A PLAN of "pooled" service has been formulated by the Chicago-Florida lines and will be placed in operation on December 17 for the winter season. Development of the plan to economize Chicago-Florida service was started last March as a result of the successful operation of three deluxe streamlined coach trains on a "pooled" basis. The action is also in line with the suggestion made by J. J. Pelley, president of the Association of American Railroads, that the railroads economize on their use of passenger equipment in order to release cars for defense purposes.

The New Plan

The new plan of operation involves three routes: one over the Chicago & Eastern Illinois, the Louisville & Nashville, the Nashville, Chattanooga & St. Louis, the Atlanta, Birmingham & Coast, the Atlantic Coast Line and the Florida East Coast; another over the Illinois Central, the Central of Georgia, the Atlantic Coast Line and the Florida East Coast; and the third over the Pennsylvania, the Louisville & Nashville, the Atlantic Coast Line and the Florida East Coast. It will result in a substantial saving in the total train-mileage to be operated during the coming winter season as compared with last winter and will release 43 sleeping, coach, dining and dormitory cars for other service.

In brief, the plan reduces the daily departures over these routes by a revamping of schedules and the operation of certain trains by each route every third day instead of daily. It also provides for the pooling of Pullman cars and makes tickets good on any train on any of the three routes.

Four Departures from Chicago Daily

Under the plan, there will be four departures from Chicago each day. At 9 a. m., Central time, the departing train will be a nine-car sleeping and chair car train. It will be operated to Miami by each route every third day on a schedule of 31 hr. 59 min. southbound. Returning it will operate on a schedule of 32 hr. 25 min., leaving Miami at 11:40 a. m. Eastern time.

At 9:40 a. m. each day, the departing train will be a streamlined coach train to Miami. It also will be operated by each route every third day on the same 29½-hr. schedule as at present. Returning, the train will leave Miami at 6:25 p. m., Eastern time.

At 8 p. m., effective January 1, the departing train will consist of sleeping and chair cars. It also will be operated over each route every third day on a schedule of 34 hr. to Miami. Returning, this train will leave Miami at 10 p. m. Eastern time and will operate on a schedule of 35¼ hr.

At 11:25 p. m., effective December 17, three trains, one for each route will leave for points on the west coast of Florida. The schedule alternates so that each day two routes operate to St. Petersburg and one to Ft. Meyers. The time to St. Petersburg will be 32 hr. 50 min. Returning it will be 36 hr. 25 min. with departure from St. Petersburg at 7:50 p. m. The time to Ft. Meyers will be 36 hr. 25 min. while returning it will be 40 hr. 35 min. with departure at 3:40 p. m. Eastern time.

This new set up gives the equivalent of six daily trains each way. Last winter the three routes had an equivalent of seven daily trains to Florida and return which served both the east and west coasts.

Emergency Board to Report Nov. 1

Railroads and unions outline positions in wage disputes— Board takes jurisdiction in Express Controversy

BECAUSE of the time that will be required by witnesses who will appear before the Emergency Board in the railway wage controversy, the board announced at the opening of hearings at Chicago on September 16, that it could not complete hearings and make a report to the President within thirty days or on October 10 and would ask the President to extend the time to November 1. The board also announced that it had taken jurisdiction in the Railway Express controversy because an emergency had been created when these employees threatened to strike on September 13. The President granted the extension on the same day.

Time Allotted for Testimony

Under the procedure outlined by the board, formal hearings will be closed not later than October 18 and the board will submit its report on or before November 1. Under this arrangement, counsel for the brotherhoods will be allowed 12 days and the railways 15 days in which to present their evidence. Evidence will be presented in the following order: (1) non-operating employees' vacation and wage demand; (2) operating employees' wage demand; (3) railways' reply to these demands; (4) carriers' proposal to change working rules; (5) employees' reply; (6) (in a separate record) express employees' demand and (7) Express Company's reply.

Carriers to Show Wage Demand Not Justified

The carriers will show that the wage increase demands of the employees are not justified and are confiscatory, according to J. Carter Fort, general solicitor of the Association of American Railroads, who is acting as counsel for the railways in the hearings before the board, in his opening statement on September 16. Mr. Fort's statement followed opening statements by Charles M. Hay, counsel for the operating brotherhoods, and Frank L. Mulholland, counsel for the non-operating unions. If the wage requests of the operating and non-operating groups are to be taken seriously at their face value, and railway wages are boosted an estimated $900,000,000, virtually all earnings of the railroads will be expropriated from the owners of the properties and turned over to employees, Mr. Fort said.

Speaking of the $900,000,000 which would be added to the railroad payroll annually, Mr. Fort said, "I do not think there will be much occasion to refer again to that fantastic figure because we have no desire to try this case on a fictitious issue as the figure in question was obviously put forward as an extreme and reckless trading proposition."

"I believe," said Mr. Fort, "that if the employees could fix their own wages they would decide in favor of a very small fraction of the increases set out in their formal requests. They know their welfare is inseparably tied up with the railroad industry and that the destruction or crippling of that industry would mean nothing but harm to them. They know that their industry is engaged in a bitter competitive struggle with new modes of transportation and must keep its costs at a minimum if it is to maintain its position in the transportation field."

Temporary Earnings Rise Doesn't Warrant Permanent Expense Increase

It must be constantly borne in mind that the conditions now existing on the railroads, and in the country at large, are of a temporary and artificial nature due to the national defense program, he said.

"As a result of these expenditures and related matters, the demands for transportation have increased and the traffic, revenues and earnings of the railroads are at present more favorable than they have been for many years," Mr. Fort said.

"However, the railroad earnings, even in this temporary period are high only by contrast with those during the ten-year period of famine and distress which preceded the defense period. They are in no sense excessive. The return on investment for the calendar year 1941 will be about 4 per cent.

Continuing, Mr. Fort said, "While no one knows how long the existing artificial situation will continue, it is plain that when the demand for transportation incident to defense work has ceased, the competition with other forms of transportation which the railroads have had to meet in recent years will reassert itself in aggravated form as a result of additional highway improvements, increased shipping and shipbuilding facilities, increased airplane production facilities and additional improved inland waterways. In short, the prevailing temporary situation in the railroad industry is not significant of the true condition of that industry and is not to be regarded as a demonstration or even an indication that the industry has returned to health."

"In view of the experience of the past ten years and of the prospects for the future, we cannot escape the conclusion that it would be reckless and irresponsible for those charged with the duties of management in the railroad industry to agree at a time like this to a permanent increase in the wage burden."

Once basic wage rates are increased it is almost impossible to bring about a reduction, he said.

Citing figures of the Interstate Commerce Commission showing average annual earnings of railroad employees as $1,821 in 1940 and $1,659 in 1929, Mr. Fort said it appeared that they have fared extremely well in the past ten years "while the industry that affords them a living has been in the deepest distress."

Where Are Railroads Going to Get Capital Funds?

The industry's distress has not been reflected in the wages or compensation paid employees except during the short period between 1932 and 1935 when a temporary deduction was made from the pay checks, he recalled. "Even during that time the cost of living dropped enough to offset twice over the temporary deduction from compensation," he said.

Referring again to the necessity for the railroads to earn a reasonable return, Mr. Fort said "that this was

necessary not only in justice to the owners of railroad securities but also because of an even stronger consideration, the reestablishment of railroad credit to enable the industry to command the capital funds necessary for constant improvements. The industry cannot survive if the employees receive virtually all the earnings available for distribution between owners and the employees."

Mr. Fort said that figures will be presented to show that the earnings of railroad employees as a group are substantially higher than the earnings of employees in other industries generally, and that the regularity or stability of employment on the railroads is much more favorable.

"The railroads have always been liberal employers," Mr. Fort said. "They led the field, I believe, in granting voluntary pensions. Their employees were strongly organized long before employees in industry generally." He read a paragraph from an article on railroad employment that appeared in the official publication of the Brotherhood of Railroad Trainmen in 1937 that concluded: "There is no group of more than half a million persons on this globe more happy and contented than is this one. On an average, there is a greater satisfaction in life for a greater number than in any other occupation."

Employees Base Case on Alleged Greater Productivity

Both Mr. Hay and Mr. Mulholland emphasized the increased service performance of employees as the basis for increased wages. According to Mr. Hay, present wages do not fairly and adequately compensate for work done; skill, responsibility and risk should be factors in fixing wages; wages have not kept pace with the increase in service performed by employees since 1920; wages should respond with the increased business and work that is to come under the emergency; railway wages should keep pace with the wage trends of other industries; and wages should increase with cost of living.

To indicate the increased service performance of operating employees, Mr. Hay said that in 1940 a train crew handled an average 50 car train of 2,047 tons 100 miles in 6 hr. while in 1920 a crew could only handle an average 36 car train of 1,443 tons 100 miles in 10 hr. The wages of this crew, he continued, were almost the same in both years.

In commenting upon the newspaper accounts of a Diesel engineer who is employed on a passenger run of 97 miles requiring 90 min., and who receives a day's pay, Mr. Hay said that this engineer receives less per minute for handling a train-load of people and their property than does a red cap who carries one's grip from the station to the train. "It is a much greater task," he continued, "to take care of a fancy horse than a plug." Mr. Hay predicted that the operating revenues of the railroads will amount to six billion dollars in 1942.

Mr. Mulholland outlined the nature of the testimony that the non-operating brotherhoods will present. Testimony on vacations with pay will involve cost to the railroads, vacation trends in other industries and recent rulings on such demands. Other testimony, he said, will reveal the fallacy of popular belief that railroad workers are well paid and have good working conditions. Hourly earnings of non-operating employees, he concluded, are less than they were 20 years ago and if an increase is not granted in keeping with rising living costs these employees will suffer a further loss when measured in purchasing power.

Upon the completion of Mr. Fort's remarks, William T. Joyner, counsel for the carriers, summarized the carriers position regarding rule changes and sought to have the proposal established in the proceedings. This action was taken because the 14 non-operating brotherhoods have heretofore refused to consider rule changes. If, he said, rule changes were not important, the railroads would not have made the proposals. He declared that the question of money alone does not prompt carrier action, for rules affect operating efficiency, employee morale and fundamental employee relations as well. The primary objective of the rule changes, he concluded, is the avoidance of waste.

Joseph F. Johnston, counsel for the carriers and assistant general counsel for the Seaboard Air Lines, outlined the railroads' position on the vacation with pay issue. He said the proposal is unworkable and needlessly expensive. He estimated the increased cost at $38,000,000 annually based upon 1940 pay rolls.

The non-operating group placed its first witness, B. M. Jewell, president of the Railway Employees' Department of the A. F. of L. on the stand on September 17. He outlined the history of the non-operating employees' demand for vacations with pay from the time it was first made on May 20, 1940, to the present time referring specifically to the western carriers' counter proposal of a 10 per cent wage reduction made on May 25, 1940, the strike ballot of February 15, 1941, the National Mediation Board's announcement made on June 17 that arbitration was made impossible and the consideration given the demand during conferences and mediation held in connection with the wage demand. He said that employees know that vacations with pay are recognized generally by industry, that they are a benefit to employee and employer and that the vacation pay is only one, two or three per cent of the pay roll.

The second witness was H. A. Bacus, research director of the Brotherhood of Railway and Steamship Clerks, Freight Handlers, Express and Station Employees. He presented exhibits showing number of employees, pay received, vacation pay and other data. He emphasized the difference between middle of the month count and total employees on the pay roll.

Mr. Bacus estimated that 571,266 non-operating employees who have been in service a year would receive vacations amounting to 5,479,470 man-vacation-days based on the Retirement Board's figures of 1939. Pay for relief workers and amounts for their retirement and unemployment insurance would total 1½ per cent of the aggregate pay. On the basis of the 1940 pay of $1,964,480,000 this would amount to $31,651,702, he said. Of the 571,226 employees, 366,901 would receive 12 days of vacation and the balance from 11 to 1 day.

THE PENNSYLVANIA ANNOUNCES the award of the Frank Thomson college scholarships to R. M. Smith, son of G. G. Smith, agent of the Long Island at Hempstead, N. Y., and to F. M. Lister, son of L. L. Lister, a draftsman on the New York division at Jersey City, N. J. Mr. Smith plans to enter the school of engineering at Lafayette College, while Mr. Lister looks forward to a course in the engineering school of Tufts College. The latter is a brother of C. A. Lister, who won a Frank Thomson Scholarship in 1936. The John Clark Sims Scholarship, which covers full tuition for four years in any undergraduate course at the University of Pennsylvania and is awarded at four year intervals, has been bestowed on R. G. Schettler, son of Jacob Schettler, stenographer in the office of vice-president in charge of traffic at Philadelphia, Pa.

Who's Who on the Emergency Board

AS stated briefly in the *Railway Age* last week, the personnel of the Emergency Board is as follows: Chairman, Wayne Lyman Morse (dean of the law school, University of Oregon); Thomas Reed Powell (professor of law, Harvard Law School); James Cummings Bonbright (professor of finance, Columbia University); Joseph Henry Willits, director for social science, Rockefeller Foundation); Huston Thompson (Washington, D. C., attorney).

Dean Morse Successful as Arbitrator

Chairman Morse in accepting the emergency-board appointment took on the same type of assignment which he has carried out with conspicuous success during the past four years on the Pacific Coast. There he has been since 1938 a United States Department of Labor arbitrator with the task of interpreting and enforcing the master agreement which governs the relationships between the longshoremen and ship operators along the entire Pacific Coast. For several years prior to the execution of that agreement, this Pacific-Coast situation was generally appraised as one of the country's sore-spot areas of friction between labor and management; and the fact that Mr. Morse has for four years functioned in a manner satisfactory to both sides as well as the government is being cited as proof of a judicial temperament and a disposition to approach problems with an open mind. Moreover, his independence is understood to have been manifest on several occasions when he answered threatened refusals to abide by his decisions with proffers of his resignation.

Last year, when there was a vacancy on the United States Maritime Commission, Mr. Morse was put forward as a candidate with the joint support of maritime labor and shipping interests on the Pacific Coast. He did not receive the appointment, and now there were reports in Washington that he was being considered for the vacancy on the National Labor Relations Board (to which, however, another man was named on September 17). Meanwhile, he has recently served as a "public" member of two industry committees set up by the Department of Labor's Wage and Hour Division to determine minimum wages under the provisions of the Fair Labor Standards Act. One of these committees, of which he was chairman, dealt with the converted paper products industry; and there he voted with the majority which recommended a 40-cents-per-hour minimum wages, the maximum authorized under the law. On the other committee, which dealt with the pulp paper industry, Mr. Morse sided again with the majority which recommended an increase, but not the 40-cent maximum.

Mr. Morse was born at Madison, Wisc., October 20, 1900. While taking on the foregoing jobs and other assignments from federal and state agencies, he has also been on the faculty of the University of Oregon Law School, where he has been dean since 1931. He received his undergraduate training at the University of Wisconsin, took his law degree at the University of Minnesota, and did graduate work in law at Columbia University. He went to the University of Oregon Law School in 1929. Among his assignments in addition to those mentioned above, Mr. Morse has served by appointment of the governor of Oregon on several commissions dealing with crime, judicial reform, and improvement of social conditions. Also, from 1936 to 1939, he acted as administrative director of the United States Attorney General's Survey of Release Procedures, holding the title of special assistant to the attorney general. Politically, he is a "progressive Republican."

Willits a Leader in His Field

Mr. Willits has a long record in the field of social service and labor relations. Prior to becoming associated with the Rockefeller Foundation in 1939, he had been since 1912 a member of the University of Pennsylvania's faculty; and had gone in for such extra-curricular activities as that of expert in a 1915 study of unemployment in Philadelphia; a 1915-1921 term as secretary and vice-president of the Philadelphia Association for Discussion of Unemployment Problems; and a 1917-1919 assignment as employment superintendent at a United States Naval aircraft factory. During 1922-1923 he was an expert in charge of studies in labor relations for the United States Coal Commission, while in 1930-1931 he was a member of the President's Emergency Committee for Employment. Meanwhile he had also served on the executive committee of the Personnel Research Federation, and as a member of the Federal Advisory Council of the United States Employment Service.

His society memberships include those in the American Management Association, and the Society for Advancement of Management; and he is the author of several brocures on labor subjects.

Mr. Willits is 52 years old, having been born June 16, 1889, in Ward, Delaware County, Pa. He attended Swarthmore College where he received his A. B. degree in 1911 and his A. M. in 1912. As noted above, he joined the University of Pennsylvania faculty in the latter year, his first assignment there being instructor in geography and industry. In 1920 he became a professor, and from 1933 until 1939 he was dean of the University's Wharton School of Finance and Commerce, the position he was holding when he joined the Rockefeller Foundation as director for the social sciences.

Thomas Reed Powell

Mr. Powell, who has been a law teacher and law lecturer at various law schools since 1907, entered upon that career after two years in the practice of law at Burlington, Vt. He was born at Richford, Vt., April 29, 1880, and was graduated in 1900 from the University of Vermont with an A. B. degree. He received his LL.B. from Harvard Law School in 1904 and the two following years were those in which he practiced at Burlington, serving also as assistant treasurer of the University of Vermont and the State Agricultural College. During 1907-1908 and 1911-1912, Mr. Powell was a lecturer on public law at Columbia University, having served in the 1908-1910 interim as associate in political science at the University of Illinois. Following his return to Columbia in 1911 he remained there until 1925, being Ruggles Professor of Constitutional Law when he left to join the faculty of Harvard Law School. At the latter he has been Storey Professor of Law since 1938. Mr. Powell is author of various books on political subjects, including The Supreme Court and State Police Power, 1922-1930, published in 1932; also, he has been a contributor

to legal publications. During 1936 he was a special assistant to the U. S. attorney general.

Bonbright and Government-Produced Electricity

Mr. Bonbright, who is the author of works on railroad capitalization, holding companies and utility valuation, has since 1939 been chairman of the Power Authority of the State of New York, an agency which is "all-out" public ownership and development of power resources, and for the St. Lawrence seaway and power project. His views on finance appear to favor strict regulation of securities issues; while on the holding-company issue he has apparently taken a middle course, favoring them as a device for consolidation, provided they are subject to a considerable degree of regulation. His books include Railroad Capitalization (1920); The Holding Company, written in collaboration with Gardner C. Means and published in 1932; and The Valuation of Property (1937). Among other assignments, Mr. Bonbright served in 1930 as economic consultant in connection with the House of Representatives committee on interstate and foreign commerce's investigation of railroad holding companies; and in 1929-1930 as a member of a New York State commission on revision of the public service commission law. His aforementioned association with the New York Power Authority began in 1931 when he became one of its trustees.

Mr. Bonbright was born in Evanston, Ill., December 5, 1891, received his B. S. degree from Northwestern University in 1913, and his Ph.D. from Columbia in 1919. He was with Bonbright & Company, New York investment bankers, during 1913 and 1914, and in 1917-1918 he was economic assistant on the President's Inquiry Commission. In 1920 he joined the Columbia University faculty as instructor in economics; and he has been professor there since 1927.

Thompson Heretofore on Emergency Board

Mr. Thompson, who has been practicing law in Washington since the expiration of his Federal Trade Commission term in 1925, is the only member of the board with previous emergency-board experience. Earlier this year he served as chairman of the three-man board which dealt with the demand of Atlanta, Birmingham & Coast train and yard service employees for so-called "standard" basic wages. That board, as noted in the *Railway Age* of June 14, page 1085, turned its hand to mediation and effected a settlement of the dispute on the basis of a compromise which gave the employees a 17.5 per cent raise, bringing their wages up to about 81 per cent of the Class I scale. Reporting to the President, the board deplored the refusal of the railroad to agree to arbitration of the dispute, warning that the machinery of the Railway Labor Act would "eventually become ineffective" if the arbitration step "is to be circumvented continuously by a refusal of one or the other of the parties to accept it." A similar report came about the same time from another emergency board which dealt with a wage dispute involving ore dock workers at Duluth, Minn.; in that case the employees had refused to arbitrate.

"Who's Who" lists Mr. Thompson as a Democrat; and he has been described by friends as one who is "progressive without being radical." In its issue of September 16, "Labor," organ of the railroad brotherhoods, says that since leaving public office Mr. Thompson "has served on the people's side in several noted legal battles, has been active in politics as a progressive Democrat . . ." He was born November 1, 1875, in Lewisburg, Pa., and was graduated from Princeton with an A. B. degree in 1897. After next studying law at New York Law School Mr. Thompson began practice in Denver, Colo., in 1899. From 1903 until 1906 he was a lecturer at the University of Denver Law School, and during the 1907-1909 period he served as assistant attorney general of Colorado. In 1913 he was appointed assistant attorney general of the United States, remaining in that position until his appointment to the Federal Trade Commission in 1918. Since 1926 Mr. Thompson has been a member of the Washington firm of Bright, Thompson & Mast, although in the latter days of former President Hoover's administration he took on an assignment as special assistant to the attorney general.

"Economic Almanac" for 1941-42

Here is a reference book* that almost anybody with any interest in what is going on, economically, in our country will find practically indispensable—once he learns what the volume contains. This "Almanac" was first issued by the Conference Board in 1940, and copies in the New York and Chicago offices of *Railway Age* have been in constant and valued use ever since. The 1941-42 issue carries out the promise of the first edition, and brings its information up-to-date.

What is the present cost of living in the United States, and how does it compare with previous periods? The book gives monthly figures for 1940 and down to May in 1941, and annual figures back to 1920. Details are shown for various representative cities (giving the contrast between them) and for the several classes of expenses that enter into the family budget. Other subjects treated include the following:

Unemployment—detailed figures from 1929 down to April, 1941. Industrial production—details by important commodities back to 1919. National income—figures back to 1929, including the distribution of the income among various groups—labor, interest, dividends, taxes, etc. Full details on the state of public finance and taxation from 1913 to 1940 inclusive. Significant statistics of leading industries. A review of the defense effort and the responsibilities of the various government agencies dealing with it. A survey of personnel policies in industry and of the number of industrial disputes. The working of the federal social security and minimum wage laws. Population trends during the past 40 years. Comparison of the U. S. economy (production, income, standards of living, etc.) with that of leading foreign countries.

Information of this kind—which almost everybody needs, who has any occasion to make responsible utterances on questions of public importance—cannot be secured, except from this book, without laborious effort and search through a wide range of publications and bulletins. As a time-saver and an aid to the popular dissemination of accurate information (without which a democratic society cannot hope to function effectively), this book has few equals. The opinion of its value expressed herein is based on experience.

The publication is distributed free of charge to companies affiliated with the Conference Board. It is available to others by purchase.

* "Economic Almanac for 1941-42." Published by the National Industrial Conference Board, 247 Park avenue, New York. 452 pages, 5⅜ by 7¾ in. Bound in Paper.

NEWS

No Shortage if Shippers Do Duty

Budd surveys car situation and N. I. T. League chairman urges shipper co-operation

Recalling how past cooperation from the shipping public in the matter of efficient use of railroad equipment has enabled him to "reject various proposals which have been made and would change measurably the present regulations governing the shipper-carrier relationship," Ralph Budd, defense transportation commissioner, has issued an appeal for still further cooperative efforts. The appeal came in a September 11 letter sent by Mr. Budd to A. W. Vogtle of Birmingham, Ala., president of the National Association of Advisory Boards, and J. E. Bryan of Chicago, president of the National Industrial Traffic League, for distribution to the members of those organizations.

Among other things, Mr. Budd discussed the coming fall peak of carloadings, which "is a matter of conjecture"; but "if carloadings follow the usual pattern in rising to the fall peak, and especially in view of the diversion of freight from other carriers to the rails, then the highest weekly loading may be between 975,000 and 1,000,000 cars." He went on to refer again to the scarcity of materials needed to fill railroad orders for new equipment, saying: "The railroads have cooperated with this office in making plans for the acquisition of equipment and for repair of unserviceable equipment necessary to meet the increasing traffic demand incident to the defense program and civilian requirements. On August 15, 1941, there were 1,589,203 railroad-owned serviceable freight cars, an increase of 163,383 over the number available on September 1, 1939. Inability to obtain necessary material in recent months, however, has resulted in the carbuilding program lagging to the extent that by October 1, 1941, there will be 20,000 less new cars in service than were provided for by the railroads."

Thus, as Mr. Budd puts it, "we must make better use of the existing cars;" and he points out how "the important part which shippers and receivers play in efficient utilization of freight cars has long been recognized." There he makes his aforementioned reference to past shipper cooperation, adding: "During the next several weeks in order that everyone desiring transportation service may receive it currently without delay, new records in the volume of transportation rendered per unit of serviceable equipment must be made. This appeal to all users of transportation to renew during the coming weeks their previous efforts to eliminate all wasteful use of transportation, and particularly to urge all to do everything in their power to prevent delay to cars while awaiting loading or unloading is made in the interest of the general welfare. A few hours and a few dollars spent in loading or unloading cars seven days a week or after usual closing time may well pay large dividends to the shippers directly involved, and to the country as a whole."

President Bryan of the N. I. T. League has meanwhile sent to League members a circular stressing the necessity for "continued watchfulness in the prompt release and handling of railroad equipment," and asserting that "there is no car shortage and with our cooperation there will be no car shortage." Mr. Bryan stated it to be his belief that all who rely on the railroads for most of the transportation they use have "unbounded faith" in the ability of the carriers "to supply all of the demands of commerce as well as the demands of the government in carrying out its immense defense program." He recalled how the grain movement was "taken in stride" by the railroads, despite doubts expressed by some just prior to the time when the movement got under way.

During the peak season ahead, Mr. Bryan went on, "there must be no let up in the program of fast loading and unloading of cars, heavier loading per car, prompt report of cars released and to increase in every possible way the usability of railroad equipment." In that connection, he urged League members to volunteer for the so-called vigilance committees which the Shippers Advisory Boards have established throughout the country.

New England Shippers to Meet September 25-26

The New England Shippers Advisory Board will hold its thirty-fourth regular meeting at the Poland Spring House, Poland Spring, Me., on September 25 and 26. The banquet will be held at 6 p. m. the evening of the first day, during which the fuel situation in New England and transportation problems incident thereto will be discussed by J. C. Richdale, vice-president, Colonial Beacon Oil Company; R. L. Bowditch, president, C. H. Sprague & Sons Company; and D. H. Howie, vice-president, Fiduciary Trust Company. This will be preceded by a meeting of the L. C. L. Transportation Committee at 4 p. m. The regular docket of the Board will be considered on September 26 and includes reports of various committees and surveys of the car situation. A luncheon will be held at 12:30.

Passenger Train Cut in the East

Roads pull off losing trains to use equipment where there are customers for it

In response to a recommendation by the Association of American Railroads that member lines eliminate duplicate passenger service and discontinue unnecessary trains to the extent that state regulatory commission and public pressure will allow, a number of Eastern carriers plan to cut off poorly-patronized branch-line and secondary main-line trains with general change of time-tables effective Sunday, September 28. In addition to these runs—discontinuance of which has been authorized by state commissions—there are a number of trains hanging in the balance on commission dockets. Finally, certain roads have already discontinued non-essential trains within the last few months.

Important Eastern carriers which have revealed their plans for curtailment to *Railway Age*, together with the runs to be discontinued, if any, follow:

ATLANTIC COAST LINE.—This road reports that it does not contemplate discontinuance of any passenger runs at present. A number of years ago the A. C. L. made a drastic reduction in local service, so that the remaining service of that character is no more than sufficient to take care of traffic demands.

BALTIMORE & OHIO.—Effective September 28 "The Columbian" trains No. 25 and 26, between New York and Washington, D. C., will be discontinued. These are through trains which carry de-luxe coach accommodations and parlor car equipment. Also the road has before various state commissions petitions for authority to discontinue on or before September 28 of:

Trains No. 48 and 49—Singerly, Md., and Philadelphia, Pa.
Trains No. 60 and 61—Singerly and Baltimore, Md.
Trains No. 47 and 48—Baltimore and Frederick, Md.
Trains No. 74-487—Hagerstown, Md., to Frederick.
Trains No. 488-75—Frederick to Brunswick, Md.
Train No. 73—Brunswick to Hagerstown.
Train No. 140—Laurel, Md., to Baltimore.
Train No. 169—Baltimore to Ft. George G. Meade, Md.
Train No. 758—Ft. George G. Meade to Baltimore.
Trains No. 40 and 41—Flora, Ill., and Beardstown, Ill.
Trains No. 42 and 43—Flora and Shawneetown, Ill.

BOSTON & MAINE.—This road plans no important schedule changes at the present time. For September 28 it contemplates only a few modifications in time-tables which do not differ from adjustments made

periodically over the years. A factor in its decision is that the gasoline shortage in northern New England territory has increased patronage on its trains—at least temporarily.

CENTRAL OF GEORGIA.—This road now has before the Georgia Public Service Commission a petition for approval to discontinue trains No. 1 and 2 between Columbus, Ga. and Macon and trains No. 5 and 6 between Savannah and Augusta. The road is also giving consideration to the elimination of mixed service on certain branches.

CENTRAL OF NEW JERSEY.—As announced previously in *Railway Age* the "Blue Comet" (Trains No. 4203 and 4218) will be discontinued September 28. This is a de-luxe all-coach train which has operated between New York and Atlantic City, N. J., since 1929.

DELAWARE, LACKAWANNA & WESTERN.—This road has recently discontinued 22 local passenger trains (including several which operated Sundays or Saturdays only) running west of Dover, N. J., to Stroudsburg, Pa., including the Sussex and Phillipsburg branches. The road has also posted notices of its intention to discontinue trains No. 708 and 715 (daily except Sunday) between Scranton, Pa., and Northumberland (80 mi.). Finally, the Public Service Commission of New York will shortly schedule public hearings on the road's proposal to substitute bus service for four passenger trains between Owego, N. Y., and Ithaca (34 mi.).

ERIE.—Effective September 28, trains No. 891 and 894 operating on the Piermont branch between Suffern, N. Y., and Monsey (5 mi.) will be eliminated. Effective October 1, all passenger service between Rochester, N. Y., and Avon (19 mi.) will be abandoned. This move affects nine trains (daily except Sunday). In addition the road awaits decision from the New Jersey Board of Public Utility Commissioners on its application to discontinue a number of "unproductive" trains in its New York suburban area.

FLORIDA EAST COAST.—This road has under application before the Florida State Railroad Commission withdrawal of certain mixed trains from passenger service. These runs—which would become freight runs only—are trains No. 131 and 132 between New Smyrna Beach, Fla., and Lake Harbor (194 mi.); trains No. 128 and 129 between Titusville and Benson junction (40 mi.); and trains No. 121 and 122, between Miami and Florida City.

PENNSYLVANIA.—This road has already discontinued the following passenger runs:

Indianapolis Division: Train 331—Indianapolis and Vincennes d. ex. S., effective July 7.
Indianapolis Division: Train 332—Vincennes and Indianapolis d. ex. S., effective July 7.
Wilkes-Barre Division: Train 707—Philadelphia and Pottsville daily, effective August 21.
Wilkes-Barre Division: Train 706—Pottsville and Philadelphia daily, effective August 21.
Cleveland Division: Train 614—Columbus and Cleveland daily, effective August 24.
Cleveland Division: Train 615—Cleveland and Columbus daily, effective August 24.
Monongahela Division: Train 7806—Pittsburgh and Brownsville daily (withdrawn Sunday only), effective August 24.
Monongahela Division: Train 7805—Brownsville and Pittsburgh Sunday, effective August 24.
Panhandle Division: Train 513—Pittsburgh and Washington, Pa., d. ex. S., effective August 25.
Panhandle Division: Train 532—Washington and Pittsburgh d. ex. S., effective August 25.

Effective September 28 the P. R. R. will discontinue a number of trains on the Panhandle division:

Train 523—Pittsburgh and Washington, Pa., Thurs. and Sat. (Withdrawn Sat. only).
Train 592—Washington and Pittsburgh, Thurs. and Sat. (Withdrawn Sat. only).
Train 851—Pittsburgh and Carnegie, Saturday.
Train 505—Kalamazoo and Grand Rapids, Sunday.
Train 512—Grand Rapids and Kalamazoo, Sunday.

In addition Middle division train No. 750 between Altoona, Pa., and Roaring Springs, and train No. 751 between Roaring Springs and Brooke's Mills—hitherto mixed service—will operate in freight service only. Finally, the railroad has application before various state commissions for discontinuance, on the Atlantic division, of trains No. 993 and 996 between Camden, N. J., and Pt. Pleasant and, on the Panhandle, of trains No. 902 and 923 between Pittsburgh, Pa., and Bishop.

SOUTHERN.—This road withdrew a total of 26 trains—passenger and mixed—early in August. At present it contemplates no further train abandonments.

WESTERN MARYLAND.—Hearings opened before the Maryland Public Service Commission on September 10 on a proposal by this road to discontinue daily trains No. 1 and 4 between Baltimore, Md., and Hagerstown (86 mi.). The road originally posted notice of discontinuance effective September 15.

R. B. White to Address Ill. C. of C. Transportation Luncheon

The Illinois Chamber of Commerce will hold its annual transportation luncheon at the Palmer House, Chicago, on October 2. Roy B. White, president of the Baltimore & Ohio, will speak on The Railroads Are Doing Their Bit.

Fire Protection Section Calls Off Meeting

The annual meeting of the Fire Protection & Insurance section of the Association of American Railroads, which was originally scheduled for October 14 and 15 at Chicago, has been called off in view of heavy duties laid on the members by present conditions.

New Haven Introduces Farm Luncheons on Cycle Trip

A farm luncheon prepared by members of the local Grange at Poughquag, N. Y., is a brand-new feature to be offered on the cycle train trip of the New York, New Haven & Hartford scheduled for Sunday, September 28, through Dutchess county. The luncheon will be offered to the cyclists at a moderate cost in addition to the fare.

Truck Committee Recommends 40-Cent Wage Minimum

Establishment of a 40 cents-an-hour minimum wage in the interstate truck transportation industry has been recommended in a report filed September 12, with General Philip B. Fleming, administrator of the Wage and Hour Division, U. S. Department of Labor, by the Property Motor Carrier Industry Committee.

This minimum, if approved after a public hearing soon to be scheduled, would increase the wage of more than 70,000 employees working for about 40,000 truck operators. The industry employs about 600,000. Testimony before the committee showed that few "over-the-road" employees will be affected by the minimum; most of those presently paid less than 40 cents an hour are terminal employees, loaders and clerks. Truck lines whose wage bill would be materially increased are those operating in the south.

The motion to recommend the 40 cent minimum wage was carried by a vote of 11 to 7, the six employer members and one "public" member of the 15-member committee being in the minority. The recommendation came after a four-day meeting at which many truck operators were heard as witnesses.

National Mediation Board Seeks Additional Funds

President Roosevelt has sent to Congress a request for a supplemental appropriation of $14,385 for the National Mediation Board for the fiscal year ending June 30, 1942. The Bureau of the Budget statement accompanying the request stated that demands on the Mediation Board make it necessary to employ additional mediators and to have more money for traveling expenses than was anticipated when the original estimates for fiscal 1942 were framed.

It was stated at offices of the Board that the request is not related to the present emergency-board proceeding; the board plans to employ two additional mediators at $3,800 a year each.

N. & W. Magazine Presents Information on Employees in Uniform

The names and camp address (if available) of 221 Norfolk & Western employees who have been called to the armed services are re-printed in the September issue of the "Norfolk & Western Magazine." For each employee there is listed his former railroad occupation, division in which he was employed, his present branch of service, and camp address.

Investigation has shown that N. & W. employees have gone into 19 states, the Canal Zone and aboard the U. S. S. Texas, and are engaged in every branch of the service. It is pointed out that experience as railroad men has proved to be of considerable value to these men. Many of them in camp now rate officers' commissions or non-commissioned officers' stripes, because of their previous railroad training.

Southwestern Passenger Association Changes Address

The headquarters of the Southwestern Passenger Association, which have hitherto been located in the Mart Building, St. Louis, Mo., have been moved to new quarters in the Syndicate Trust Building, 915 Olive street. For the next two months the room address will be 1125, after which the Association will move to the tenth floor.

D. & H. Suit Dismissed

The suit of the Delaware & Hudson against certain members of the National Railroad Adjustment Board and Royal A. Stone, who acted as referee in 73 dead-

locked labor claims filed by three operating brotherhoods, was dismissed by Federal Judge Michael L. Igoe at Chicago on September 17. The court held that it lacked jurisdiction to pass on the merits of the railroad's suit.

250,000th Beneficiary Under Retirement Act

The Railroad Retirement Board this week certified the 250,000th beneficiary under the Railroad Retirement Act. He is William A. Wollenschlager of Waupaca, Wisc., a brakeman for the Minneapolis, St. Paul & Sault Ste. Marie who retired on July 30 at the age of 65 after 40 years of railroad service. Carlton Hayward, Chicago regional director for the Retirement Board, went to Waupaca on September 18 to present Mr. Wollenschlager his first annuity check.

205,000 Members of Armed Forces Traveled by Rail in August

More than 205,000 members of the armed forces were moved by the railroads in the month of August, according to the Military Transportation Section of the Association of American Railroads. Of this number, more than 138,000 were handled on 417 special trains; the remainder moved in groups on regular trains.

The August figures swelled the total number of military service men moving by railroad for the eight months of this year to 1,857,513, of whom more than a million were handled on 3,372 special trains that were operated throughout the country.

Advance information received by the Military Transportation Section of the railroad association indicates that these movements will continue heavy during the balance of this year, particularly since about 200,000 members of the Army to be discharged in the next few months, will be replaced with selectees moving from induction stations to reception centers and later to training bases.

Treasury Officers Meet at Colorado Springs, September 24-26

The annual meeting of the Treasury Division, Association of American Railroads, will be held September 24 to 26, inclusive, at the Broadmoor hotel, Colorado Springs, Col. The program will include addresses on "State Capitalism and Transportation," by Donald D. Conn, executive vice-president, Transportation Association of America; "The Proper Approach to Public Relations Work," by Z. G. Hopkins, special representative, Western Railways' Committee on Public Relations; and "Some Recent Developments Affecting Regulation of Rail Carriers," by E. H. Bunnell, vice-president, A. A. R.

* * *

Photo Courtesy Canadian Pacific

A Royal Britisher Sees Angus Shops

During his visit to Canada recently the Duke of Kent inspected the locomotive works at the Canadian Pacific's Angus (Montreal, Que.) shops as a part of a review of tank construction carried on by the road. He is shown accompanied by H. B. Bowen, chief of motive power and rolling stock. Vice-president D. C. Coleman follows in the background.

Scheduled also are the opening address to be made by the Division's chairman—H. B. Fink, secretary and treasurer, Atchison, Topeka & Santa Fe; the welcoming address of Henry Swam, trustee of the Denver & Rio Grande Western; and an informal talk by Robert S. Henry, assistant to president, A. A. R. W. H. Anderson, secretary and treasurer, Colorado & Southern, is chairman of the committee in charge of arrangements for the meeting.

A. A. R. Issues Directory of Army and Navy Posts, Bases and Stations

A. F. Cleveland, vice-president—traffic, Association of American Railroads, has issued a directory of army and navy posts, bases and stations—prepared "for the information and use of railroads and the public generally." The directory, a 126-page book, gives for each base its location, post office address, express office, telegraph office, and railroad station; copies may be secured from the A. A. R. Traffic Department, Transportation Building, Washington, D. C., for 25 cents each, a price which includes the cost of later supplements.

"Hiawathas" Establish New High in August

A new high for the "Hiawathas," which the Chicago, Milwaukee, St. Paul & Pacific has been operating between Chicago and the Twin Cities since May 29, 1935, was established in August when more passengers were carried than in any previous month by the Hiawathas and their extra sections. The afternoon Hiawatha carried 38,472 paying passengers in August as compared with the previous high of 36,508 in August, 1937. The morning Hiawatha carried 22,456 paying passengers compared with the high of 19,648 in August, 1940.

A-3 Rating for Air Transportation's Maintenance Materials

The commercial air transportation industry got an A-3 limited blanket preference rating applicable to deliveries of all materials entering the maintenance of planes and ground equipment under an order issued September 12 by Donald M. Nelson, director of priorities, Office of Production Management. The OPM announcement said that the order [which gives the same rating as that applicable on new freight cars and locomotives for railroads] assures "the continuous operation at a high degree of efficiency of air lines in the United States."

Short Lines to Meet at Chicago

The American Short Line Railroad Association will hold its twenty-eighth annual meeting at Chicago on September 29 and 30. Clarence F. Lea, chairman of the committee on Interstate and Foreign Commerce of the House of Representatives, will be the speaker at a luncheon on September 30 and John M. Hall, director of the Bureau of Locomotive Inspection, and Homer C. King, assistant director of the Bureau of Service of the Interstate Commerce Commission, will address the members dur-

ing the business sessions. The program also provides for reports from officers and committees and round table discussions.

Southwest Board to Meet September 25

The Southwest Shippers Advisory Board will hold its fifty-eighth regular meeting at Dallas, Tex. on September 25. The national transportation situation and the vital part which the railroads are playing in meeting national defense requirements, as well as the prospective tonnage that will be moved in the Southwest during the last quarter of this year will keynote the meeting. At a luncheon sponsored by the Transportation Club of Dallas, A. J. Langford, district manager of Defense Contract Service of the Office of Production Management at Dallas, will speak on Defense Contract service.

Southern Pacific Denied Right to Import Laborers

The Southern Pacific and agricultural interests in Arizona have been denied authority by the Immigration Bureau of the Department of Justice to bring into the United States a large number of Mexican laborers. The Southern Pacific had asked to bring in some 600 Mexican laborers who would be employed in maintenance-of-way work on its lines in the southwestern states. The reason given for the application was that there now exists a shortage of labor in this section of the country.

No specific reason was given for the refusal, but it is known that the railway labor organizations and the Mexican Government had objected to the proposal.

August Export Traffic

Cars of export freight, other than grain, unloaded at Atlantic, Gulf and Pacific ports in August totaled 56,011 cars, the largest number unloaded in any one month since the compilation of these statistics began in November, 1939, according to the Association of American Railroads. This exceeded by 1,029 cars the previous high record established in July this year; in August, 1940, there were 54,253 cars unloaded. Cars of grain for export unloaded in August this year at these ports totaled 3,592, compared with 2,536 in the same month last year.

"No congestion or delay to traffic exists at any of the Atlantic, Gulf or Pacific ports, due to the cooperation of steamship lines, port authorities, exporters and shippers," the A. A. R. statement said.

The Pacific Northwest Board to Meet at Spokane

The Pacific Northwest Advisory Board will hold its forty-ninth regular meeting at Spokane, Wash., on September 25-26. J. N. Davis, assistant to the trustee of the Chicago, Milwaukee, St. Paul & Pacific, will be the speaker at a luncheon on September 26 sponsored jointly by the Spokane Chamber of Commerce and the Advisory Board. His subject will be "The Iron Horse is Wheel Horse Today."

G. C. Randall, manager of port traffic of the Association of American Railroads at New York will tell the members of national transportation conditions, and explain conditions at Atlantic and Gulf ports under the heavy movement of Army, Navy and lend-lease supplies.

Railroads Have Coal Stock Pile of 8,066,000 Tons

"To lighten transportation demands for coal shipments during the fall and winter peak period," the railroads have built a stockpile of coal which on September 1 had reached 8,066,000 tons, according to Ralph Budd, defense transportation commissioner.

Approximately 5½ million tons of coal have been added to the stockpile since the beginning of May, when the total was 2,538,000 tons. On September 1 last year, the coal stockpile was 5,654,000 tons—2,412,000 tons less than this year.

On the recommendation of Commissioner Budd, the Advisory Commission to the Council of National Defense urged in May that railroads build a stockpile of coal during the summer.

August Operating Revenues 29 Per Cent Above 1940

Preliminary reports from 87 Class I roads, representing 81.3 per cent of total operating revenues, made public September 16, by the Association of American Railroads, show that those roads, in August, had estimated operating revenues amounting to $399,934,906, compared with $310,035,346 in the same month of 1940 and $381,239,580 in the same month of 1930. The August gross was 29 per cent above that for August, 1940, and 4.9 per cent above August, 1930.

Freight revenues of the 87 roads in August, amounted to $332,173,833 compared with $251,090,579 in August, 1940, and $291,204,876 in August, 1930—32.3 per cent above the former, and 14.1 per cent above the same month in 1930. Passenger revenues totaled $40,408,426 compared with $34,017,844 in August, 1940, and $56,786,964 in August, 1930—18.8 per cent above the former, but 28.8 per cent below the same month in 1930.

OPM's Rail Equipment Problems Assigned to Leon Henderson

Among 28 industrial branches established in a rearrangement of Office of Production Management assignments is the Automotive and Transportation Equipment Branch which is one of the eight placed under the jurisdiction of Leon Henderson, director of OPM's Division of Civilian Supply. The rearrangement announced last week by Director General William S. Knudsen came about as a result of President Roosevelt's recent executive order creating the Supply Priorities and Allocations Board and transferring the civilian supply functions from the former Office of Price Administration and Civilian Supply (now Office of Price Administration) to OPM.

In addition to his directorship of OPM's Division of Civilian Supply, Mr. Henderson remains as administrator of OPA. According to the Knudsen announcement, the eight OPM industrial branches assigned to Mr. Henderson "will assume primary responsibility for dealing with those industries serving predominantly civilian needs." The industrial branches, the announcement also said, "correspond to the old commodity sections as the operating units under which the various industry committees function."

Freight Car Loading

Loadings of revenue freight for the week ended September 13 totaled 913,952 cars the Association of American Railroads announced on September 18. This was an increase of 116,212 cars, or 14.6 per cent, over the preceding week (which included the Labor Day holiday); an increase of 109,687 cars or 13.6 per cent, over the corresponding week last year; and an increase of 113,521 cars, or 14.2 per cent above the comparable 1939 week.

As reported in last week's issue, loadings of revenue freight for the week ended September 6, totaled 797,740 cars, and the summary for that week, as compiled by the Car Service Division, A. R. A., follows:

Revenue Freight Car Loading

For Week Ended Saturday, September 6

Districts	1941	1940	1939
Eastern	160,075	136,815	130,842
Allegheny	177,703	145,439	127,651
Pocahontas	53,214	45,670	48,469
Southern	109,315	94,098	97,081
Northwestern ..	129,867	126,052	105,974
Central Western	115,074	102,036	102,770
Southwestern ..	52,492	44,984	49,570
Total Western Districts	297,433	273,072	258,314
Total All Roads	797,740	695,094	662,357
Commodities			
Grain and grain products	36,878	37,254	36,136
Live stock	12,617	15,876	16,651
Coal	150,141	118,522	120,535
Coke	12,626	9,844	7,796
Forest products	38,686	34,657	29,980
Ore	70,802	69,487	49,478
Merchandise l.c.l.	138,398	134,579	135,592
Miscellaneous .	337,592	274,875	266,189
September 6 ...	797,740	695,094	662,357
August 30	912,720	768,775	716,397
August 23	899,750	761,108	683,906
August 16	890,374	743,050	669,793
August 9	878,549	727,073	661,023
Cumulative Total, 36 Weeks ...	28,522,053	24,150,012	21,846,065

In Canada.—Carloadings for the week ended September 6 totaled 61,552, as compared with 67,162 in the previous week (which contained a holiday) and 55,361 a year ago, according to the weekly statement of the Dominion Bureau of Statistics.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada:		
Sept. 6, 1941	61,552	27,521
Aug. 30, 1941	67,162	29,883
Aug. 23, 1941	65,654	29,844
Sept. 7, 1940	55,361	21,356
Cumulative Totals for Canada:		
Sept. 6, 1941	2,126,155	1,052,420
Sept. 7, 1940	1,858,802	872,789
Sept. 9, 1939	1,618,665	723,636

Transportation Study Board Still Getting Organized

Problems of getting settled in its new offices and considering its personnel organization continued to occupy the Transportation Study Board during the past week. While the Board has yet made no official announcements, it is understood that it plans to seek additional funds from Congress.

At present the Board has an appropriation of $100,000 for the current fiscal year ending June 30, 1942; but it has been pointed out that the statutory salaries

called for will absorb nearly half of that. In other words, the annual salaries of the three Board members are $10,000 each or a total of $30,000 while the law fixes a salary of $9,000 for the general counsel and $7,500 for the secretary. As this issue went to press those two officers had not been selected, although Chairman Nelson Lee Smith said that many applications have been received.

Sabotage on Continent Concentrates on Railroad Operations

A wave of failures in railroad roadway and equipment in Germany and Italy and the conquered countries of Europe is unquestionably the result of sabotage conspired by the recent British victory "V" campaign. Informed sources report that small "Vs" are found cut into or painted on virtually every variety of railroad property. They are particularly noticeable on equipment which has been deliberately wrecked.

To mention just a few instances supplied by British press services, a collision between two trains at Baia, Italy, near Naples, on July 22, was the second major Italian railroad accident in three days. The day preceding, a train carrying 700 transplanted "workers," evidently proceeding over the Alps to Germany, was deliberately derailed. In France a freight train was derailed at Epinay-sur-Seine, near Paris by saboteurs unscrewing the bolts fastening the rails to the chairs. Some 60 freight cars were completely wrecked thereby. On the same day railroad traffic on the Royal Hungarian State Railways between Budapest and Miskolcz was completely disrupted by destruction of the roadway. This route is of particular importance to Germany as it is the main route for "maintenance" troops to and from southern Poland.

Congress Passes Tax Bill

Congressional action was completed this week on the new tax bill (H. R. 5417) when the House of Representatives and Senate adopted the conference report on the measure. The conference report followed generally the bill as amended in the Senate; and thus the final version does not have that provision which would have levied a 10 per cent tax on "adjusted excess profits net income" of corporations which elect to compute their taxes on the "invested capital" basis.

As noted in the *Railway Age* of August 23, page 326, R. V. Fletcher, vice-president and general counsel of the Association of American Railroads, opposed at Senate hearings that special 10 per cent tax which was in the bill as originally passed by the House.

The five per cent tax on the amount paid for passenger transportation by rail, motor vehicle, water, or air remains; but there are exemptions on tickets selling for 35 cents or less, amounts paid for commutation or season tickets for single trips of less than 30 miles, or amounts paid for commutation tickets for one month or less. Also, exempt will be payments for transportation furnished the federal or state governments; and payments "under special tariffs for fares of more than 1¼ cents per mile" applicable to round trip tickets sold to members of the armed forces when traveling on furlough at their own expense.

* * *

Photo courtesy Caples Company

"Miss O. & W." Receives Her Due

Trustee Frederick E. Lyford of the New York, Ontario & Western awards a first-prize check of $25 to Miss Harriet Oran of New York City for winning the beauty contest conducted in the summer resort territory served by the railroad. All contestants were girls who spent their vacations in this section and reached it by the railroad.

Equipment on Order

Class I railroads on September 1, had 92,033 new freight cars on order, according to the Association of American Railroads. On August 1, they had 89,416 on order, and on September 1, last year there were 18,456. The new cars on order on September 1, this year included 59,490 box, 26,464 coal, 399 stock, 2,284 flat, 2,316 refrigerator and 1,080 miscellaneous cars.

Class I roads on September 1, also had 611 new locomotives on order, of which 317 were steam and 294 electric and Diesel-electric. On August 1, there were 603 new locomotives on order, of which 300 were steam and 303 were electric and Diesel-electric. New locomotives on order on September 1, last year, totaled 179 which included 114 steam and 65 electric and Diesel-electric.

In the first eight months of 1941, the railroads put in service 49,134 new freight cars compared with 44,791 in the same period last year. Of the total number placed in operation in the first eight months this year, there were 25,785 box, 20,359 coal, 1,458 flat, 1,218 refrigerator, 50 stock and 264 miscellaneous cars. Also, in the first eight months this year, the railroads put in service 372 locomotives, of which 84 were steam and 288 electric and Diesel-electric. Installed in the first eight months last year were 237 new locomotives, of which 70 were steam and 167 electric and Diesel-electric.

Club Meetings

The Railway Club of Pittsburgh, Pa. will hold its next meeting at the Fort Pitt hotel, Pittsburgh, on September 25 at 7 p. m. A member of the staff of the National Nickel Company will present a paper "Nickel Highlights", which will be illustrated by motion pictures.

The Toronto Railway Club will hold its next meeting at the Royal York hotel, Toronto, Ont., on September 29, at 7:45 p. m. R. A. Carr, Electro-Chemical Engineering Corporation, will present a talk entitled, "The Behavior of Steam and Water in a Locomotive Boiler", which will be supplemented by a motion picture.

The Eastern Car Foreman's Association will hold its next meeting at the Engineering Societies Building, New York, on October 10, at 8 p. m. Charles R. Busch, vice-president, Unit Truck Corporation, will present a paper entitled, "Unit Trucks", accompanied by slides illustrating the mechanics and handling of this product.

The Canadian Railway Club will hold its next meeting at the Windsor hotel, Montreal, Que., on October 20 at 8:15 p. m. A talk will be presented by W. A. Patterson, president, United Air Lines Transportation Corporation.

L. K. Sillcox, first vice-president, New York Air Brake Company, will address the New York division of Railroad Enthusiasts at a meeting in Room 2728, Grand Central Terminal, New York, on September 26 at 7:45 p. m. The speaker's subject will be "Speed Possible". Also on

the program is the showing of a sound film of the Southern Pacific entitled, "Daylighting the Padres' Trail."

1940 Freight Commodity Statistics by Geographical Areas

The Interstate Commerce Commission's Bureau of Statistics has made public its compilation of 1940 data on tons of carload revenue freight originated and tons terminated by classes of commodities and by geographical areas. The data are for Class I railroads.

Pennsylvania led last year in both tons originated and tons terminated for all commodities, the respective figures being 186,501,840 tons and 131,875,294 tons. The breakdown by commodity groups showed that state leading also in products of mines originated—141,439,976 tons—and in both originated and terminated tonnages of manufactures and miscellaneous — 43,326,759 tons originated and 33,534,353 tons terminated. Meanwhile Ohio led in the tonnage of products of mines terminated, its figure being 102,915,643 tons as compared with Pennsylvania's 90,622,781 tons.

Illinois led in the products of agriculture categories with 9,378,437 tons originated and 9,309,714 tons terminated; and also in animals and products—2,330,596 tons originated and 2,178,842 tons terminated. Washington led in products of forests with 7,644,812 tons originated and 6,448,878 tons terminated. The statement also shows forwarder traffic originated and terminated; and there New York led with 801,646 tons originated and 501,686 tons terminated. Total 1940 forwarder traffic was 2,749,050 tons originated and 2,849,871 tons terminated.

N. I. T. League President Would Fight Government-Ownership Propaganda

Citing what "seems to be a rather definite attempt on the part of the proponents and supporters of government ownership of railroads to gain public favor, if not public demand for federal ownership," J. E. Bryan, president of the National Industrial Traffic League, has called upon members for suggestions as to what steps the League should take "to counteract this sort of propaganda." Such suggestions, Mr. Bryan said, would be welcomed by the League's "special committee to deal with any attempt to bring about ownership or operation of the railroads by government," which is headed by Charles R. Seal.

Especially does Mr. Bryan ask that Mr. Seal's attention be directed to government-ownership-propaganda articles appearing in the daily press, magazines and other periodicals. Such propaganda, he had previously said, "is of an insidious nature and apparently it frequently appears as a part of some well written article or treatise dealing with the railroads or transportation generally."

"For example," Mr. Bryan went on, "there is an article published in the August issue of 'Fortune' entitled 'Transport: The Peak is the Problem.' The author is not known but it contains a number of inaccurate statements, some that are doubtful, or mere guesses, and draws conclusions which indicate a lack of knowledge on the part of the author concerning the true facts as applied to the railroads of the country." A study of the article, the N. I. T. League president added, "leads one to believe that the discussion contained therein is a build-up for the concluding paragraph," which in turn, "is certainly 'fish in the net' for the railroad-ownership-minded members of Congress and others who have long wanted to gain control of the nation's transportation system and all that go with them and it might be used effectively to delude the public or that part of the public not informed of the true facts."

Signs on Federal-Aid Structures Must Be Approved by PRA

Asserting that "advertising as such is out of harmony with the objectives of highway travel," the Public Roads Administration has advised railroads of its disapproval of large signs painted on railroad structures constructed over the highways with the aid of federal funds. The advice came in a recent administrative memorandum issued by PRA Commissioner Thomas H. MacDonald who ordered that hereafter plans for such structures "shall show any symbol, emblem or lettering of informative character that is to be displayed with full information concerning size and other characteristics."

After approval of the plans, Mr. MacDonald went on, "no change shall be made in such sign or symbol without specific approval." Previously the memorandum had stated that instances of the display of "large signs" had been brought to the attention of PRA, which, however, sees "no particular objection to the display of a symbol or emblem or the name of the railroad on railroad structures if the sign is sufficiently small to serve for informational purposes rather than for advertisement." In most cases, the memorandum added, "the identifying symbol of the railroad alone without lettering should be sufficient;" and "if the need for public information indicates that the symbol should be supported by supplementary wording the lettering shall be of only such size as to convey the informational message. . . ."

Bridge and Building Convention Program

The American Railway Bridge and Building Association will hold its forty-eighth annual convention at the Hotel Stevens, Chicago, on October 14-16. Its program will be keyed to the problems confronting bridge, building and water service supervisory officers in these days. In keeping with this objective, the convention will remain in session until late Thursday afternoon, abandoning the inspection trip which has been held on the closing afternoon of the meeting in previous years. The program follows:

TUESDAY, OCTOBER 14

Morning Session—10:00 A. M.

Opening exercises.

Address on The Tasks That Lie Ahead of Us, by M. J. Gormley, executive assistant, A. A. R.

Greetings from the American Railway Engineering Association, F. L. C. Bond (vice-president and general manager, C. N. R.), President.

Greetings from the Roadmasters and Maintenance of Way Association, A. B. Hillman (engineer maintenance of way, C. & W. I.-Belt), President.

Greetings from the Bridge and Building Supply Men's Association, C. C. Rausch (Dearborn Chemical Co.), President.

Address by President H. M. Church (general supervisor bridges and buildings, C. & O.)

Appointment of special committees.

Report of Committee on the Protection of Bridges and Roadway from River Bank Erosion; A. B. Chapman, chairman (office engineer, C. M. St. P. & P., Chicago).

Afternoon Session—2:00 P. M.

Labor in a Period of Defense Activity

Report of Committee on the Possibilities of Off-Track Equipment in Bridge Construction and Maintenance; H. T. Livingston, chairman (engineer bridges, C. R. I. & P., Chicago).

Address on Maintaining Forces in a Period of Widespread Demand for Skilled Labor, by P. O. Ferris, chief engineer, D. & H.

Report of Committee on the Maintenance and Repair of Bridge and Building Equipment; Martin Meyer, chairman (supervisor bridges and buildings, C. & W. I., Chicago).

Adjourn at 4:00 P. M. to study exhibit of bridge, building and water service materials presented by the Bridge and Building Supply Men's Association.

Evening Session—8:00 P. M.

Celebrating the Association's Golden Anniversary

Address on A Half Century's Achievements, by Clarence R. Knowles (superintendent water service, I. C. System), Past-President.

Moving pictures of the failure of the Tacoma Narrows Bridge, presented by Alfred Herz, advisory engineer, Public Service Company of Northern Illinois.

WEDNESDAY, OCTOBER 15

Morning Session—10:00 A. M.

Buildings for a Streamlined Era

Report of Committee on Modernizing Small Stations to Meet Present Day Requirements; L. C. Winkelhaus, chairman (architectural engineer, C. & N. W., Chicago).

Address on Railway Buildings in a Changing Age, by A. O. Lagerstrom, architect, C. M. & St. P. & P.

Report of Committee on Wearing Surfaces for Buildings, Floors, Platforms and Roadways; E. L. Rankin, chairman (architect, G. C. & S. F., Galveston, Tex.)

Luncheon—12:15 P. M.

Address on The Protection of Railroad Structures Against Sabotage, by E. P. Coffey, chief of technical laboratory, Federal Bureau of Investigation, Washington, D. C.

Afternoon Session—2:00 P. M.

Materials in a Period of National Defense

Address on What We Are Facing, by E. C. Smith, vice-president, purchase and stores, N. Y. N. H. & H., New Haven, Conn.

Address on What We Can Do, by G. A. Haggander, assistant chief engineer, C. B. & Q., Chicago.

Adjourn at 4:00 P. M. to study exhibit of bridge, building and water service materials presented by the Bridge and Building Supply Men's Association.

Wednesday Evening—7:00 P. M.

Annual dinner, jointly with the Bridge and Building Supply Men's Association.

THURSDAY, OCTOBER 16

Morning Session—9:00 A. M.

Water Service in an Era of Change

Report of Committee on Welding in Water Service; J. P. Hanley, chairman (water service inspector, I. C. System, Chicago).

Address on Modernizing Water Service Facilities to Meet Modern Operating Conditions, by A. E. Pierce, engineer water supply, Sou., Washington, D. C.

Report of Committee on Efficient Methods of Transporting Bridge and Building and Water Service Gangs; S. S. Long, chairman (division engineer, C. & N. W., Escanaba, Mich.)

Afternoon Session—2:00 P. M.

Report of Committee on Recent Development in Paint Removal; C. M. Burpee, chairman (managing editor, *Railway Engineering and Maintenance Cyclopedia*, Chicago).

Summing Up, by Armstrong Chinn, chief engineer, Alton, Chicago Business Session.

(All sessions on Chicago Daylight Saving Time, 1 hour faster than Central Standard Time).

Defense Traffic Has Not Jammed Rails

American railroads are moving the freight traffic of the nation with an efficiency, dependability, and smoothness never

before attained, M. J. Gormley, executive assistant of the Association of American Railroads, told the Foreign Trade Association of the San Francisco Chamber of Commerce on September 15. "There will be no difficulty," Mr. Gormley said, "in handling all transportation and materials for the preparedness program and without interference with the movement of ordinary commercial traffic.

"Because of expenditures amounting to approximately ten billion dollars for improvements of every kind, but particularly for equipment, the railroads since 1923 have made a vast increase in operating efficiency, particularly in recent years. In the first six months of 1941, for instance, every freight car owned by the railroads has produced approximately three-fifths more transportation than in 1918 and one-third more than in 1929, the year of heaviest traffic.

"This is one of the reasons why freight traffic in 1941, which has been greater than in any corresponding period since 1930, has been moved without car shortage or other difficulty. There have been, of course, some delays in unloading freight cars but, when compared with the total volume, it is very small. We have every hope that the performance in 1942, with the anticipated heavier traffic, will be even better than it has been in 1941.

"There is no limit to the capacity of the railroads to move the traffic of the nation, so far as their physical plant is concerned. It can be increased to any extent necessary by the mere addition of equipment without the addition of other facilities.

"In the construction of approximately 274 cantonments, factories, powder plants, and other defense projects in 1940 and 1941, involving a cost approximating two billion dollars, all of the material has been delivered on time. On a general average, this material was unloaded in less than the 48 hours free time allowed by the railroads.

"Compare this situation with conditions that existed in the last war when at one time there were more than 200,000 cars of freight that could not be moved because they could not be unloaded at destination, thereby putting 25 per cent of the railroad capacity out of business. That condition no longer exists because the present successful cooperative effort has been brought about through advanced planning.

"I am unable to give you figures as to the diversion of traffic that has taken place from the Panama Canal lines to the railroads. Such traffic, however, has been handled without difficulty or delay. Analysis of all traffic moving through the Panama Canal discloses the fact that, if the intercoastal traffic were diverted to the rail carriers, it would amount to 319,964 carloads per year. This is equivalent to more than half of the total tonnage that might be diverted. It should be remembered, however, that a very considerable portion of this traffic already is moved by rail to and from the ports on the Pacific and Atlantic coasts. Furthermore, if the total traffic moved via the railroads, according to our best estimates, it would require the services continuously of approximately 33,600 cars."

American railroads, Mr. Gormley explained, not only have fewer freight cars in need of repair today than ever before on record but they put in service in 1939 and 1940 and plan to install in 1941 and 1942 a total of 310,000 new freight cars, plus replacement of cars retired, estimated at 30,000 for the current year.

"There will be put in service this year," Mr. Gormley added, "approximately 20,000 less freight cars, however, than were expected, due to the fact that the car-builders and the railroads have been unable to get sufficient materials to carry out the program as planned. There is sufficient car-building capacity to produce all of the cars called for by the railroad program if the steel and other materials needed for that work could have been procured. We have been given the priority ratings that should produce the materials. All we lack is the performance under that priority.

"I believe the railroads' need for this material will be so apparent to all concerned that it will be supplied to avoid hampering the railroads in handling the traffic."

Rails Handle Approximately 62,500 to and from Legion Convention

During the national convention of the American Legion at Milwaukee, Wis., the railways handled approximately 62,500 legionnaires and visitors into and out of that city from September 13 to September 17, promptly and without congestion. A large proportion of these passengers arrived via Chicago from which city they took the Chicago, Milwaukee, St. Paul & Pacific, the Chicago & North Western or the Chicago, North Shore & Milwaukee (electric line) to Milwaukee. All three roads which are double-tracked between Milwaukee and Chicago, made extensive preparations to care for the traffic.

The Milwaukee expanded its regular passenger service, which consists of 25 trains daily between Milwaukee and Chicago, by using 50 additional coaches on these regularly-scheduled trains and by operating 50 special trains in addition to the regular service, which consists of a total of 68 carded passenger trains daily in and out of Milwaukee. Most of the traffic, however, moved between Milwaukee and Chicago. Approximately two coaches were added to each regular train between these two points and 77 cars were used for special trains operated in shuttle service between Milwaukee and Chicago. Indicative of the volume of traffic which occurred at times, the Milwaukee handled 7,000 passengers into its Milwaukee station during a period of 1 hr. and 10 min. on Tuesday morning.

A similar expansion of service was provided by the North Western, which has a regular scheduled passenger service of 23 trains daily between Chicago and Milwaukee and 11 other regular passenger trains to Milwaukee from the north and northwest. In addition to this service, the North Western operated 20 special trains and nine second-sections of regular trains between Chicago and Milwaukee.

The North Shore line expanded all its regular trains with extra cars and also ran extra sections of the regular trains when the traffic required, particularly from Kenosha, Wis., to Milwaukee. The regular trains were usually filled to capacity by the time they reached Kenosha and the extra sections from this point into Milwaukee handled the additional traffic. In addition, three late night trains were added to the North Shore schedules on Saturday and Sunday, and four late night trains on Monday and Tuesday. These trains left Milwaukee for Chicago at midnight, 1:00 a. m. and 2:00 a. m.

Because of the lack of hotel and housing facilities in Milwaukee for a convention of this size, the American Legion originally estimated that 5,000 legionnaires would stay in Chicago, 1,800 in Racine, Wis., and 1,500 in Kenosha, commuting back and forth to the convention. In addition a large number of legionnaires living in the Chicago area commuted to Milwaukee and back during the convention.

To further aid the housing situation, the Milwaukee and the North Western each parked a large number of Pullmans in two modern "Pullman Cities." The Milwaukee Pullman City was established at the Reed Street produce and dairy yard which has paved driveways. Forty-five Pullmans were parked at this point. Air, water and steam lines were installed and a stand-by locomotive was connected to the air and steam lines. A power car with a motor-generator outfit was connected to convert the city current into direct current to keep the Pullman batteries charged, which in turn provided light and operated the air-conditioning units in each car. Floodlights were installed at one end of the yard but the driveways between the Pullmans were lighted by extension bulbs over the doorways, which were connected to the car lighting circuits. Shower baths for men and women were installed in two baggage cars parked in one corner of the produce house, and laundry service was provided. Sanitation was taken care of by the constant exchange and disinfection of soil pots. This latter service was contracted.

The North Western's Pullman City contained 48 Pullmans parked in a yard immediately south of its passenger station and east of the main line tracks close to Lake Michigan. Similar facilities were provided, although connections for electric power, air and water were secured from a roundhouse nearby. A standby locomotive was also used. Air-conditioning of the Pullmans was not necessary at this location because of the proximity of Lake Michigan.

Oil Shortage Controversy Continues to Rage

The current controversy as to whether or not there is an oil shortage on the Eastern seaboard continued to rage unabated this week with the special Senate committee created to study the oil situation contending in a report that there is no shortage and that the Petroleum Coordinator's office had created "unnecessary alarm" in handling the matter, and that office issuing a rejoinder to the effect that such a shortage did exist and that present methods of conservation must continue.

Also, the chances of relieving the alleged shortage by the construction of a 24-inch crude oil pipe line from Texas to New

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There is a

JOB TO BE DONE

. . . . that only modern power can handle

The problem of moving the increasing carloadings without interfering with existing schedules is being faced by railroads throughout the country. Farsighted roads realize that not only will carloadings increase but in most instances running time will have to be decreased. The only power capable of handling increased loads on decreased schedules is . . . . NEW MODERN SUPER-POWER. Lima is prepared to augment your fleet of high-speed, super-power, steam locomotives with engines of the type that have proved themselves to be the most up-to-date in design and performance. Prepare for the future by placing your order NOW tor Lima-built super-power.

LIMA LOCOMOTIVE WORKS — LIMA LOCOMOTIVE WORKS INCORPORATED — INCORPORATED, LIMA, OHIO

York faded again this week when the Supply Priorities and Allocations Board reaffirmed its action of last week by denying a formal application of the Petroleum Co-ordinator's office for a priority rating for a plan involving the immediate use of steel plate in the construction of the line.

Steel plate is vitally needed for the construction of ships, and SPAB took the position that it is more important in the emergency to provide for ship construction than to insure plenty of gasoline for pleasure driving on the Eastern seaboard.

Informing Ralph K. Davies, acting petroleum co-ordinator, that the steel plate cannot be spared, the board took a more favorable attitude in regard to the use of seamless tubing. Billets from which the tubing is extruded are not under as heavy demand as steel plate, and studies have indicated that it would be possible to produce enough tube for at least part of the pipe line without upsetting defense requirements if production schedules were properly adjusted to defense contracts in the tube mills.

SPAB requested the Office of Production Management to make a further study of the project to determine whether, if sufficient seamless tube is released, the necessary pumps, valves, motors and other accessories can be produced fast enough to be ready for use when the tube is ready. The board also agreed that if permission is given to construct the line out of seamless tube, the situation in regard to plate will be reviewed by SPAB next spring.

Senator Maloney's (Democrat of Connecticut) committee, in reporting to the Senate, besides voicing the sentiment that there is no need for a gasoline shortage, went on to point out that there also is no shortage of transportation facilities. The report says that this conclusion is based upon the "studied opinion and serious promises" of J. J. Pelley, president of the Association of American Railroads, and Ralph Budd, defense transportation commissioner. "Their testimony favorably impressed and satisfied the committee," continues the report, "although it should be reported that the acting petroleum co-ordinator, and at least one or two others who testified, were reluctant to accept the accuracy of the statements of Mr. Budd and Mr. Pelley."

The committee did urge that conservation methods be continued, but it felt that the present ban on night sales of gasoline should be immediately lifted. It went on to say that with the use of idle tank cars and the reversal of certain pipe lines the shortage in the surplus of oil on hand on the Eastern seaboard could easily be eliminated.

In this respect, the petroleum co-ordinator's office announced on September 14 that the Tuscarora pipe line of the Standard Oil Company of New Jersey would be reversed to bring crude oil into the New York area, instead of carrying refined products westward as heretofore. The line extends from Bayway, N. J., to Midland, Pa., on the Ohio River, and has a capacity of 32,000 barrels of refined products daily. As a crude line, it will deliver approximately 25,000 barrels daily. The crude oil will probably be delivered to Midland principally by barges, it was pointed out, moving up the Mississippi and Ohio Rivers from the Texas and Louisiana Gulf Coast, and there is also the possibility of using rail transportation if cars can be obtained.

It also became known this week that the oil companies were not entirely satisfied with the reduced rates on petroleum by tank car which were agreed upon recently and reported in last week's issue. C. F. Dowd, chairman of the subcommittee on tank cars of the transportation committee of District 1, in a telegram to A. F. Cleveland, vice president in charge of traffic of the A. A. R., voiced the opinion that "the rates you have offered are too high when viewed in the light of present emergency and the value of traffic which railroads claim they can handle." He went on to say that the oil companies hope in view of the existing conditions as a result of the present emergency the railroads will consider and explore further the possibility of further reductions in these rates.

Mr. Cleveland answered this telegram by saying that he did not believe that Mr. Dowd's statement concerning rates reflects the joint action of the oil committee and the traffic executive associations of the interested territories. He went on to point out that the rates were agreed to as a result of considerable bargaining on the part of both the oil companies and the railroads. "If this does not constitute an agreed basis between your subcommittee and the traffic executive associations involved," wrote Mr. Cleveland, "then I do not know what an agreed basis of rates is."

After declaring that the present agreed upon rates are "a substantial contribution on the part of the railroads," Mr. Cleveland continued his letter to Mr. Dowd by saying that he doubted "if the railroads would have made such drastic reductions if at the time our meeting was held they had before them the testimony presented the next day by Leon Henderson, who stated in no uncertain terms that if the oil companies could show the necessity for an increase in prices of oil due to the higher cost transportation he would readily grant increases in prices."

"The railroads," Mr. Cleveland concluded, "will of course be willing at all times to give consideration to any proposals which your committee may desire to make. I feel very keenly, however, that the reductions that have been made represent the minimum basis that your committee ought to expect. There is very little, if any, profit to the railroads under the agreed adjustment."

Senator Andrews and Representative Cannon, Democrats of Florida, have recently offered in the Senate and House S. Joint Resolution 103 and House Joint Resolution 233 calling for a petroleum co-ordinator's agency which would replace the organization now operating under the direction of Petroleum Co-ordinator Ickes in the Department of the Interior. The agency would have broad powers to regulate the use of oil in the country.

Also it was learned this week that representatives of the various pipe line companies were meeting in Washington to work out an agreement with the Department of Justice whereby that agency would quash certain indictments brought last year charging the pipe line companies with violations of the Elkins Act by granting rebates to the oil companies in the form of dividends. The meeting adjourned on September 16 after a one-day session, with, in the words of the Justice Department, "nothing having been accomplished."

Equipment and Supplies

LOCOMOTIVES

THE NORTON COMPANY, Worcester, Mass., has ordered one 75-ton fireless steam locomotive from the H. K. Porter Company.

THE WASHINGTON & OLD DOMINION has placed an order for three Diesel-electric locomotives of 44 tons each with the General Electric Company.

THE CRUCIBLE STEEL COMPANY has received delivery of one 65-ton fireless steam locomotive for service in its Harrison, N. J. plant from the H. K. Porter Company.

THE UNITED STATES NAVY DEPARTMENT is inquiring for two Diesel-electric locomotives, one for delivery to Cherry Point, N. C.—Inv. 8692; and one for delivery to Oakland, Cal.—Inv. 8715.

THE UNITED STATES ARMY, Engineering Department, has placed an order for eight 2-8-0 type steam locomotives with the Lima Locomotive Works. The inquiry for this equipment was reported in the *Railway Age* of July 26.

FREIGHT CARS

THE CARNEGIE-ILLINOIS STEEL CORPORATION is inquiring for three 50-ton hopper cars.

C. D. HICKS & Co., St. Louis, Mo., is inquiring for 300 tank cars of 10,000 gal. capacity.

SIGNALING

THE NEW YORK, CHICAGO & ST. LOUIS has placed an order with the Union Switch & Signal Co. covering materials for the installation of centralized traffic control on 16 miles of single track between Northeast, Pa. and Westfield, N. Y., with the control point at Northeast. In addition to the centralized traffic control system apparatus and control machine, the project involves new alternating current switch machines, color light ground signals, with necessary relays, rectifiers, transformers, etc. and the necessary sheet steel relay housings for the apparatus. The code line circuits will be superimposed upon an existing dispatcher's telephone line circuit with simplex telegraph circuits. The railroad's regular construction forces will carry out the field installation work.

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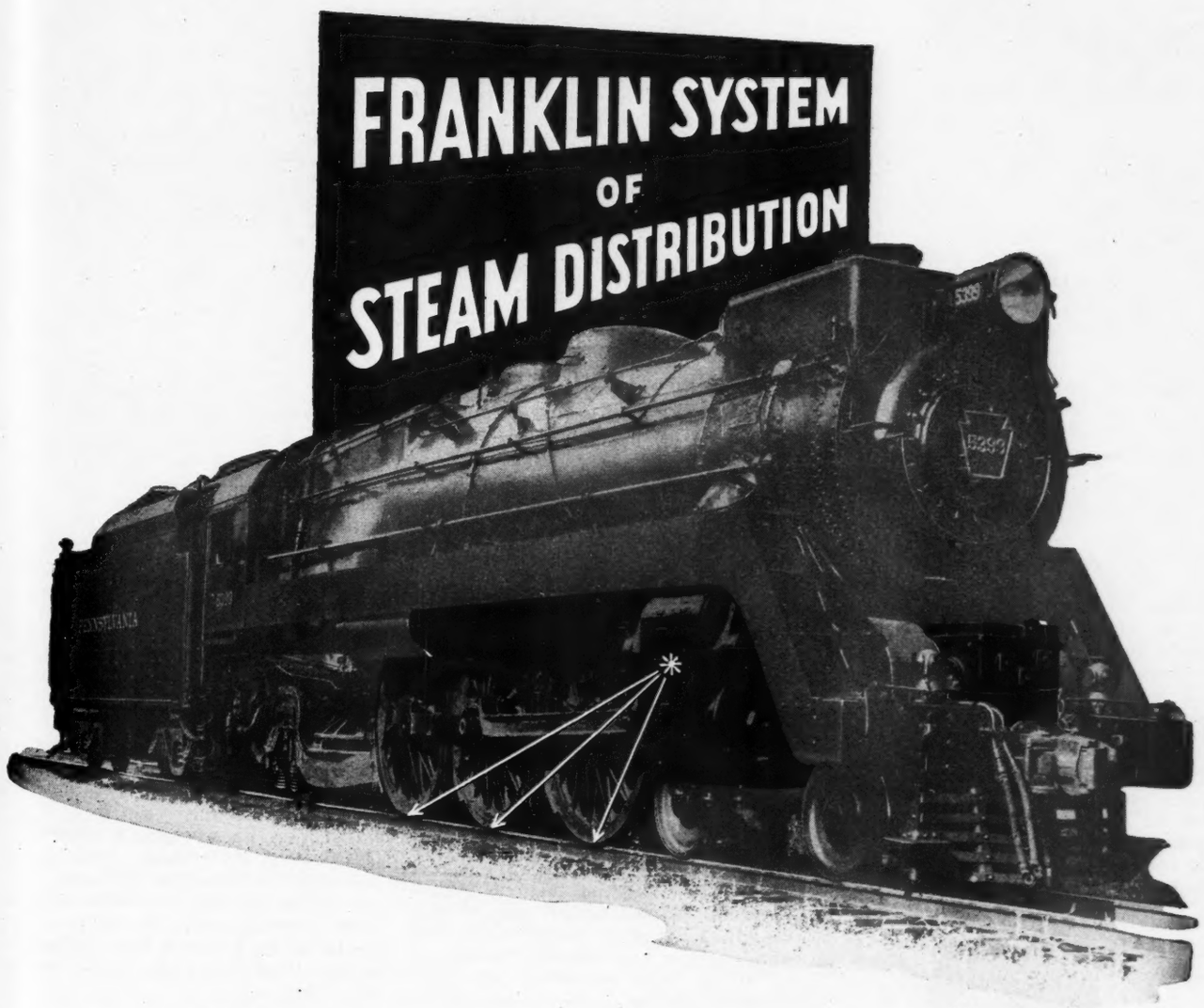
90 to 95% Mechanical Efficiency

WITH THE



The unusually high mechanical efficiency of a locomotive equipped with the Franklin System of Steam Distribution is one of the reasons why it can deliver 35 to 45% more power at 70 to 80 miles per hour.

*From 90 to 95% of the horse power developed by the cylinders in the operating range is delivered at the rails. Locomotives equipped with the Franklin System of Steam Distribution have the highest mechanical efficiency of any prime movers in railroad service.

FRANKLIN RAILWAY SUPPLY COMPANY, INC. NEW YORK CHICAGO

In Canada: FRANKLIN RAILWAY SUPPLY COMPANY, LIMITED, MONTREAL

Supply Trade

Gordon LeFebvre, former executive of the American Locomotive Company, has been elected vice-president and general manager of the **Cooper-Bessemer Corporation.**

Paul F. Vander Lippe has been appointed assistant to the manager of sales in charge of the Kansas City, Kan. office of the **Carnegie-Illinois Steel Corporation** to succeed **Howard J. Mullin,** who was recently transferred to Detroit, Mich.

Harry G. Johnson has been appointed salesman for the Indianapolis, Ind. territory of **Manning, Maxwell & Moore, Inc.,** to succeed **Gerald Beebe,** who has been granted an extended leave of absence due to illness.

Frank M. Bosart, former district service representative at Buffalo, N. Y., for the **Electro-Motive Corporation,** has been transferred to the sales department and will be located at that company's offices at 230 Park Avenue, New York.

The **American Locomotive Company** has established a department of information under the direction of **Lynn C. Mahan,** to have charge of all public relations activities and the handling of inquiries from the press and public, seeking information on the company's operations. The new department will have its headquarters at the company's New York office, 30 Church street.

Eugene Harbeck, for a number of years assistant district manager at Chicago for the Armco Railroad Sales Co., Middletown, Ohio, has been appointed district sales manager of the Track Spring Washer division of **The National Lock Washer Company,** Newark, N. J., with headquarters at Chicago. Mr. Harbeck was born in Chicago on April 4, 1899, attended Grand View Normal Institute, and graduated in mechanical engineering from the University of Michigan in 1922.

Eugene Harbeck

S. E. Gane has been placed in charge of a new office opened by the **Gould Storage Battery Corporation** at 430 Frick Building, Pittsburgh, Pa. Mr. Gane had been sales representative for this company in the Pennsylvania, southern Illinois and Kentucky coal fields for the past eight years. **E. J. Boyle,** recently appointed sales representative for the company, will assist Mr. Gane.

Coolidge Sherman has been appointed Eastern sales manager of the **Allegheny Ludlum Steel Corporation.** Mr. Sherman has been associated with this company since his graduation from Yale university in 1916. From 1922 to 1930, he served as sales manager, Cleveland, Ohio district, for the Ludlum Steel Company, and from 1930 to 1938 as assistant to the president. Immediately previous to his latest appointment he was manager of valve steel sales.

OBITUARY

Charles H. Roberts, treasurer of the Johns-Manville Corporation died September 10, at Doctors Hospital, New York. He was 51 years of age.

Jay G. Robinson, owner of the National Railway Devices Company, Inc., Chicago, died in that city on September 8 of a heart ailment. He was born in 1862 and founded the company in 1909.

Construction

ATCHISON, TOPEKA & SANTA FE.—A contract has been awarded to the Sharp & Fellows Contracting Company, Los Angeles, Cal., for a 5700-ft. line change south of Del Mar, Cal., which will improve drainage conditions and establish a more permanent roadbed further removed from the wave action of the Pacific Ocean. The work involves approximately 160,000 cu. yd. of excavation and 650 cu. yd. of embankment, the installation of 6000 lin. ft. of 8-in. perforated drainage pipe, the construction of four concrete pipe culverts and the extension of a concrete arch culvert. Track work, involving the laying of 112-lb. rail, will be done by company forces.

NEW YORK, NEW HAVEN & HARTFORD.—This company has awarded a contract amounting to $31,300 to the Foskett & Bishop Co. of New Haven, Conn., for the construction of facilities for fueling Diesel-electric locomotives at Dover street, Boston, Mass.

UNITED STATES WAR DEPARTMENT.—The engineers' office, Jacksonville, Fla., is asking for bids for the construction of a railroad spur connection from Morrison Field to the Seaboard Air Line, West Palm Beach, Fla.—Inv. III.

VIRGINIAN.—Division 4 of the Interstate Commerce Commission, in Finance Docket No. 11991, has ordered that the time within which this company shall complete the construction of a line in Wyoming County, W. Va., be extended to September 1, 1943.

Financial

BESSEMER & LAKE ERIE.—*Abandonment by the Pittsburg, Bessemer & Lake Erie.*—The Pittsburg, Bessemer & Lake Erie, and the Bessemer & Lake Erie, respectively, have been authorized by Division 4 of the Interstate Commerce Commission to abandon a line and the operation thereof extending easterly from a point of connection with the Hilliards branch to Argentine, Pa., two miles.

CISCO & NORTHEASTERN.—*Abandonment.*—This company has asked the Interstate Commerce Commission for authority to abandon and dismantle its line extending from Cisco, Tex., to Throckmorton, 65.5 miles.

COLORADO & SOUTHERN.—*Interest and Extension of Maturities.*—A plan for the reduction of bond interest and the extension of maturities of the funded debt of the Colorado & Southern, as a move to avoid bankruptcy proceedings, was proposed to bondholders by the management of the railroad on September 16. Under the plan a fixed interest saving of $1,103,465 annually would be affected by a reduction in the interest rate. Holders of the $20,000,000 general mortgage 4½ per cent Series A bonds were asked to reduce the rate to 4 per cent and to accept fixed interest at 1½ per cent and contingent interest at 2½ per cent. The contingent interest would be non-cumulative, payable only to the extent earned in any one year and would be payable after appropriation of not more than $300,000 in any one year for additions and betterments.

DELAWARE, LACKAWANNA & WESTERN.—*Abandonment of Operation.*—This company has asked the Interstate Commerce Commission for authority to abandon operation under trackage rights over a portion of the line of the Lehigh & New England extending from Sussex, N. J., to Augusta, 10.1 miles.

DENVER & RIO GRANDE WESTERN.—*Equipment Trust Certificates.*—This company has asked the Interstate Commerce Commission for authority to assume liability for $1,260,000 of two per cent equipment trust certificates, maturing in 10 equal annual installments of $126,000 on November 1 in each of the years from 1942 to 1951, inclusive. The proceeds will be used as a part of the purchase price of new equipment costing a total of $1,692,460 and consisting of 500 50-ton, 40 ft. 6 in. box cars.

Subject to I. C. C. approval, the issue has been awarded to Halsey, Stuart & Co., Inc., of Chicago, on a competitive bid of 99.234, making the annual cost to the company approximately 2.147 per cent.

DENVER & RIO GRANDE WESTERN.—*Changes in Proposed Plan of Reorganization.*—The Interstate Commerce Commission has made public a supplemental proposed report of Examiner M. S. Jameson changing certain features of his original

Continued on next left-hand page

NO. 149 OF A SERIES OF FAMOUS ARCHES OF THE WORLD

IRON FORGE

WEYMOUTH, N. J.

This complete masonry arch shown, and the smaller ones in the background, are all that remain of the Weymouth Forge at Weymouth, New Jersey. An interesting feature of the construction of these arches is that they were all built without keystones of Jersey sandstone. It was at this forge that the first cannon balls for the American Revolution were made, and it was also here that the first iron pipe made in America was fabricated. Cannon and cannon balls for the War of 1812 were also made here. This forge was so huge that it required eight cart-loads of charcoal for a single charge of this furnace.

* * * * * * *

While the Security Sectional Arch does not date back as far as this forge, it has played an equally important part in the history of American railroads. 33 years ago American Arch engineers introduced the first Security Sectional Arch, the primary step in the standardization of locomotive arch brick. While there have been numerous improvements in the construction of the Security Sectional Arch the basic design remains the same and is today the standard on American railroads.

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HARBISON-WALKER REFRACTORIES CO.

Refractory Specialists

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proposed report for reorganization of this company details of which were given in the *Railway Age* of August 30, page 346. The provision of the prior report mentioned in this August 30 story's third paragraph and now changed is that under which holders of Denver & Salt Lake income bonds would be called upon to accept an extension of the maturity date of such bonds. Previously the examiner recommended that the income bonds as extended would carry a fixed interest rate of four per cent and a contingent rate of two per cent; now he proposes to eliminate the contingent-interest feature, leaving the income bonds with only the four per cent fixed interest. In accordance with the foregoing, there is also a correction in the tabulation showing annual charges, the item of $194,680 under prior contingent charges being eliminated to make the total prior contingent interest $362,406 as compared with the former report's $557,086.

ERIE.—*Reorganization.*—In order to simplify and consolidate its capital structure in connection with its pending reorganization under section 77 of the Bankruptcy Act, this company has asked the Interstate Commerce Commission for authority to purchase the properties of the Nypano and the Cleveland & Mahoning Valley and to issue and sell in connection therewith $18,000,000 of Ohio Division first mortgage bonds, to be dated September 1, 1941, and to mature September 1, 1971. Under the plan of consolidation the Erie also proposes to purchase all the property of the Rayen Terminals Company, consisting of a fireproof storage warehouse used as a freight station adjacent to the tracks of the Cleveland & Mahoning Valley at Youngstown, Ohio, for which transaction the company understands that I. C. C. authority is not necessary.

The proceeds of the bond issue will be used to redeem $18,057,000 of the following obligations: $8,000,000 of New York, Pennsylvania & Ohio prior lien bonds; $2,816,000 of Mahoning Valley bonds; $6,700,000 of Erie-Cleveland & Mahoning Valley collateral trust certificates of 1939; and $541,000 of the Rayen Terminals Company first mortgage serial bonds. The balance of $57,000 will be provided from funds in the Erie's treasury.

The proposed plan will, in the words of the petition, "permit a simplification of the corporate and security structure of the Erie System in harmony with the plan of reorganization." The company anticipates that the new bonds will bear interest at 3¼ per cent and that there will be an annual reduction in fixed interest charges of more than $120,000.

Also in connection with this plan of corporate simplification the Nypano has asked the commission for authority to acquire from the Erie Land & Improvement Company of Pennsylvania 2.1 miles of railroad known as the Westerman Coal & Iron, extending from Sharon, Pa., to a point about one-half mile west of the Pennsylvania-Ohio state line in Trumbull County, Ohio.

LAKE SUPERIOR & ISHPEMING.—*Stock.*—This company has asked the Interstate Commerce Commission for authority to amend its articles of incorporation so as to change each present share of $100 par value common stock into five shares with a par value of $20 per share. Stated in another way, the present capitalization of $4,300,000, consisting of 43,000 shares, of which 42,840 are outstanding, would be changed to 215,000 shares of a par value of $20 per share. The reason given for asking to change the par value is that the stock is now selling at too high a price on the market.

LOUISVILLE & NASHVILLE.—*Abandonment.*—This company has asked the Interstate Commerce Commission for authority to abandon a line extending from Allingham, Tenn., to Harriman, 16.6 miles.

OKLAHOMA & RICH MOUNTAIN.—*Abandonment.*—This company has been authorized by Division 4 of the Interstate Commerce Commission to abandon as to interstate and foreign commerce its entire line extending from a connection with the Kansas City Southern at Page, Okla., westerly to Pine Valley, 16.9 miles.

PENNSYLVANIA.—*Trusteeing of New Haven Stock.*—This company has requested the Interstate Commerce Commission to approve a plan whereby it will trustee with the Hartford-Connecticut Trust Company 217,900 shares of common capital stock of the New York, New Haven & Hartford in connection with the commission's recent decision permitting the Pennsylvania to acquire control of the reorganized Wabash, details of which were given in the *Railway Age* of August 9, page 235. Under the trust indenture, the trust company will vote the stock of the New Haven, free from any control by the Pennsylvania. The trust agreement also provides that the trust will end if the stock is finally declared to be worthless as a result of the reorganization of the road which is now awaiting federal district court approval. The commission had agreed to permit the Pennsylvania to control the Wabash only on the condition that it trustee both its Lehigh Valley and New Haven stock.

SANTA FE, SAN JUAN & NORTHERN.—*Abandonment of Trackage Rights.*—This company has asked the Interstate Commerce Commission for authority to abandon operations over tracks of the Santa Fe Northwestern between San Ysidro, N. Mex., and Bernalillo, 24.9 miles.

ST. LOUIS SOUTHWESTERN OF TEXAS-FORT WORTH & DENVER CITY.—*Joint Operation.*—These companies have been authorized by Division 4 of the Interstate Commerce Commission to operate over each other's lines in the city of Fort Worth, Tex.

ST. PAUL UNION DEPOT.—*Bonds.*—This terminal company has awarded a $14,737,000 issue of first and refunding mortgage 3⅛s, series B, to Salomon Brothers & Hutzler and associates on a bid of 101.25, representing an interest cost basis to the carrier of approximately 3.06. There were three other bidders. The winning group offered the bonds publicly on September 17 at a price of 102⅜ per cent and accrued interest. The bonds, which are dated October 1, 1941, and due 1971, were issued to refund the terminal company's 5 per cent gold bonds, series A, as reported in last week's *Railway Age.*

SOUTHERN.—*Loans.*—This road has reduced bank loans outstanding to $3,500,000 by paying off $2,500,000 on September 15. The remaining bank debt consists of $1,000,000 of 2s, due November 15, 1941; $1,000,000 of 2½s, due February 15, 1942; $500,000 of 2½s, due May 15, 1942 and $1,000,000 of 2¾s, due August 15, 1942. The total bank loan, which was negotiated in May this year, was $10,000,000, the proceeds of which were used to refinance R. F. C. loans.

SOUTHERN PACIFIC.—*Operation by the Texas & New Orleans.*—Division 4 of the Interstate Commerce Commission has approved the modification of agreements under which the Texas & New Orleans operates under trackage rights over the line of the Public Belt Railroad Commission of New Orleans and over a bridge across the Mississippi River at New Orleans.

TERMINAL RAILROAD ASSOCIATION OF ST. LOUIS.—*Pledge.*—This company has been authorized by Division 4 of the Interstate Commerce Commission to pledge with the trustee under its first consolidated mortgage a renewal first mortgage bond of the St. Louis Bridge in the amount of $5,000,000, and subject to such pledge to assign the bond to the corporate trustee under the general mortgage, and subject to the prior pledge and assignment to assign it to the corporate trustee under the refunding and improvement mortgage as supplemented.

WICHITA UNION TERMINAL.—*Bonds.*—This road has awarded a $2,100,000 issue of first mortgage serial bonds to Salomon Brothers & Hutzler and associates. The winning bid—which was one of four received—represents an interest cost basis to the carrier of 2.816. The bonds—dated November 1, 1941—have the following maturities and yields:

Amount	Maturity	Coupon	Yield
$50,000	1942	2¼	.40
50,000	1943	2¼	.70
50,000	1944	2¼	1.00
50,000	1945	2¼	1.25
50,000	1946	2¼	1.50
50,000	1947	2¼	1.65
50,000	1948	2¼	1.85
50,000	1949	2¾	2.00
50,000	1950	2¾	2.10
50,000	1951	2¾	2.20
50,000	1952	2¾	2.30
50,000	1953	2¾	2.40
50,000	1954	2¾	2.50
50,000	1955	2¾	2.55
50,000	1956	2¾	2.60
50,000	1957	2¾	2.65
50,000	1958	2¾	2.70
50,000	1959	2¾	2.75
50,000	1960	2¾	2.80
1,150,000	1961	2⅞	2.875

Average Prices of Stocks and Bonds

	Sept. 16	Last week	Last year
Average price of 20 representative railway stocks..	29.79	30.01	29.70
Average price of 20 representative railway bonds..	64.10	64.62	59.16

Continued on next left-hand page

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and Save Fuel

The Elesco exhaust steam injector . . . an open type of feedwater heater using exhaust steam . . . gives the highest heat recovery per unit of weight and cost.

More than 875 are in service or on order in the United States and Canada — over 20,000 throughout the world. IT CAN'T BE WRONG.

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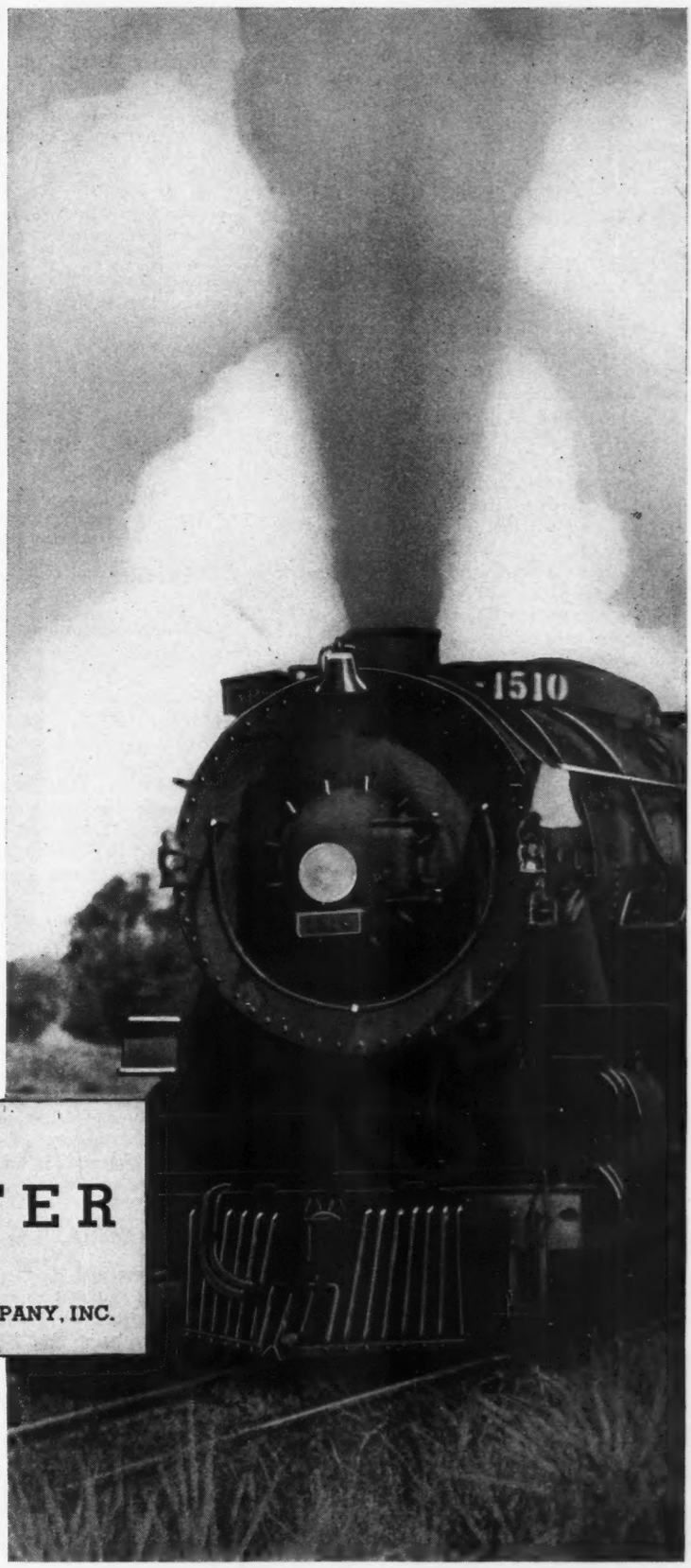

Illustration — One of many D&RGW locomotives equipped with Elesco exhaust steam injectors.

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Superheaters ● Feedwater Heaters ● American Throttles
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Railway Officers

EXECUTIVE

Morris Forgash, who has been vice-president and traffic assistant to the president of the United States Freight Company and its subsidiary, Universal Carloadings & Distributing Company, has been elected president of those companies, succeeding the late F. N. Melius. **C. A. Waltz,** vice-president, has been elected executive vice-president.

FINANCIAL, LEGAL AND ACCOUNTING

Harry S. Walker, assistant general auditor on the Union Pacific, has been appointed senior assistant general auditor, with headquarters as before at Omaha, Neb., succeeding **C. J. Merriam,** who has retired. **E. J. Doolin,** auditor of equipment service accounts, has been appointed auditor of disbursements, with headquarters at Omaha, relieving **Bernard Lancaster,** who has also retired. **W. S. Ure,** assistant treasurer, has been appointed assistant general auditor succeeding Mr. Walker. **A. E. Callin,** accountant in the general auditor's office, has been promoted to assistant general auditor, replacing **Rudolph W. Wipprecht,** whose promotion to general auditor is reported elsewhere in these columns.

James Louis Puig, whose promotion to freight claim agent of the Illinois Central system, with headquarters at Chicago,

James Louis Puig

was reported in the *Railway Age* of September 13, was born at New Orleans, La., on November 14, 1890, and entered railway service on September 29, 1911, as a clerk in the New Orleans freight office of the Illinois Central. In September, 1917, he was transferred to Chicago as a clerk in the office of the superintendent of freight service. In October, 1918, he was appointed agent, freight service, at Chicago and in December, 1919, he was appointed claim clerk of the Louisiana division, with headquarters at McComb, Miss. Mr. Puig was transferred to the special agent's department at New Orleans in April, 1920, and on May 1, 1920, he was promoted to inspector of stations and transfers, with headquarters at Chicago. On February 1, 1933, Mr. Puig was appointed traveling freight claim agent at New Orleans, La., which position he held until his recent promotion.

Rudolph W. Wipprecht, assistant general auditor on the Union Pacific, has been promoted to general auditor, with headquarters as before at Omaha, Neb., succeeding **Hugh A. Toland,** whose death on September 3 was reported in the *Railway Age* of September 13. Mr. Wipprecht entered railway service in 1907 as a clerk and agent for the Texas & Gulf (now part of the Gulf, Colorado & Santa Fe) at Timpson, Tex., and later became traveling accountant for the Galveston, Harrisburg & San Antonio (now part of the Southern Pacific Lines in Texas and Louisiana) at Houston, Tex. In February, 1918, he went with the Oregon Short Line (now part of the Union Pacific) at Salt Lake City, Utah, as a special accountant and later that year he was appointed chief clerk in the disbursements accounting department. In March, 1920, he was promoted to auditor of disbursements and in 1930 he was appointed auditor of freight accounts. Mr. Wipprecht was advanced to auditor of the O. S. L. in 1932, with headquarters as before at Salt Lake City, and in January, 1936, he was transferred to Omaha as assistant to the general auditor of the Union Pacific system. He was promoted to assistant general auditor in April, 1940.

Rudolph W. Wipprecht

OPERATING

S. S. Sprague and **E. D. Spence** have been appointed assistant superintendents of transportation on the Southern Pacific, with headquarters at San Francisco, Cal.

I. A. Moore, supervisor of bridges and buildings on the Chicago & Eastern Illinois at Danville, Ill., has been promoted to trainmaster, with headquarters at Salem, Ill.

G. M. Helmig, roadmaster on the Missouri Pacific at Marquette, Kan., has been promoted to master of trains and track for the Missouri-Illinois (Missouri Pacific subsidiary) west of the Mississippi river, with headquarters at Bonne Terre, Mo., succeeding **Hans Schantl,** who retired on September 16.

D. Flanigan, chief dispatcher on the Texas & Pacific at Ft. Worth, Tex., has been promoted to trainmaster on the Eastern division, with the same headquarters.

Carl C. Pitcher, division superintendent of the Buffalo terminal of the Baltimore & Ohio, with headquarters at Buffalo, N. Y., has been appointed superintendent of the New York terminals, with headquarters at St. George, Staten Island, N. Y., succeeding **E. E. McKinley,** incapacitated because of illness. **John J. Sell,** trainmaster at East Salamanca, N. Y., has been appointed terminal superintendent Buffalo-Rochester terminals, with headquarters at Buffalo, succeeding Mr. Pitcher.

J. W. Leonard, assistant superintendent of freight transportation of the Central region of the Pennsylvania, with headquarters at Pittsburgh, Pa., has been promoted to superintendent of the Monongahela division, with the same headquarters, succeeding **James L. Cranwell,** who has been transferred to the Indianapolis division, with headquarters at Indianapolis, Ind. Mr. Cranwell replaces **J. Benton Jones,** who has been transferred to the Cleveland division, with headquarters at Cleveland, Ohio, relieving **Frederick H. Krick,** who has been granted a leave of absence because of illness.

S. F. Dingle, assistant superintendent on the Canadian National at Dauphin, Man., has been promoted to superintendent, with the same headquarters, succeeding **J. J. Napier,** who has retired. A. B. Lee, assistant superintendent at Kelowna, B. C., has been transferred to North Battleford, Sask., replacing **Fred Willcock,** who has been transferred to Kamloops, B. C.

Mr. Napier was born in Cannington, Ont., on July 23, 1881, and entered railway service on the Grand Trunk (now part of the Canadian National system) in September, 1900. In 1903 he was appointed a locomotive fireman at Lindsay, Ont., and two years later he was transferred to the Canadian Northern (now part of the Canadian National) as a locomotive engineer on construction work between Sudbury, Ont., and Toronto. He remained on the Central region of the C. N. R. as a fireman, road foreman of engines and assistant master mechanic until September, 1920, when he was promoted to superintendent, with headquarters at Hornepayne, Ont. Mr. Napier was transferred to Capreol, Ont., in 1926; to Brandon, Man., in 1927; to Melville, Sask., in 1930; to Brandon in 1931; to Winnipeg, Man., in 1933; and to Dauphin in April, 1941.

B. F. Wells, superintendent of the Nebraska division of the Union Pacific, with headquarters at Omaha, Neb., has been promoted to acting general superintendent of the Eastern district with headquarters at Cheyenne, Wyo. **George J. Mulick,** assistant superintendent at North Platte, Neb., has been promoted to superintendent of the Nebraska division, with headquarters at Omaha, succeeding Mr. Well. **H. E. Shumway,** assistant superintendent at Omaha, has been appointed acting superin-

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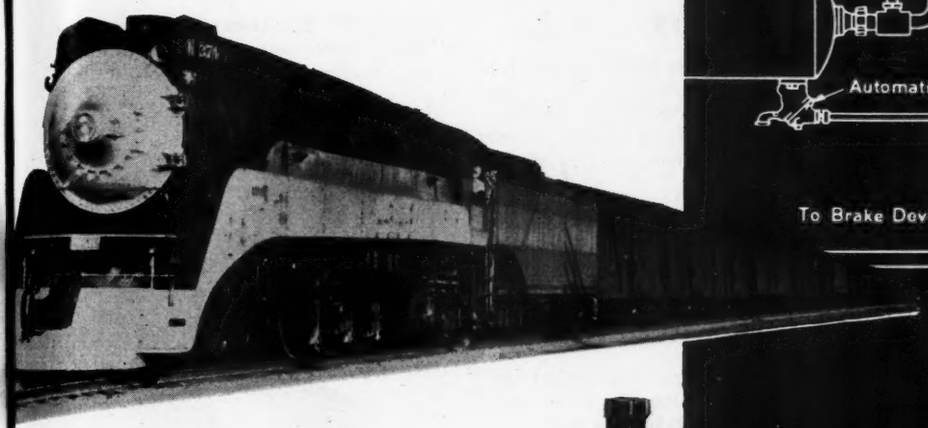
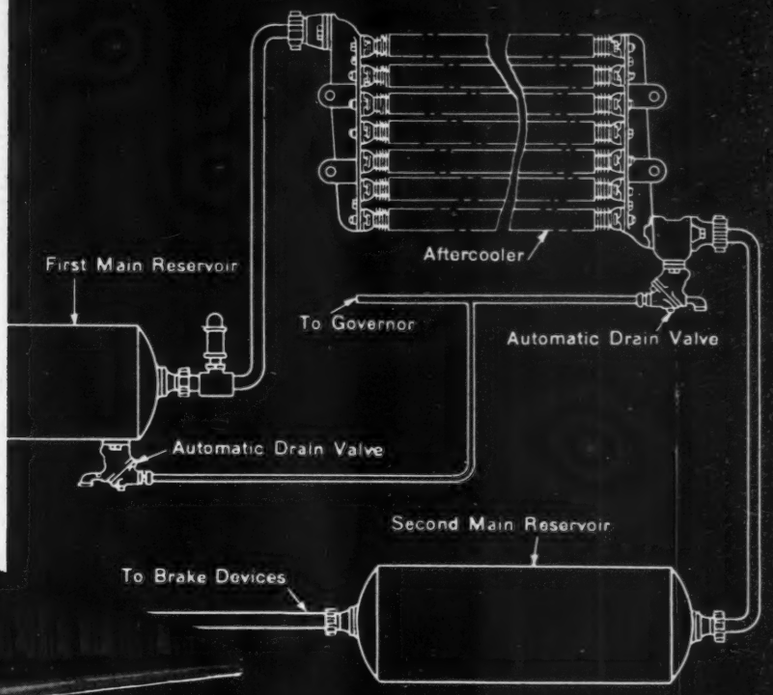
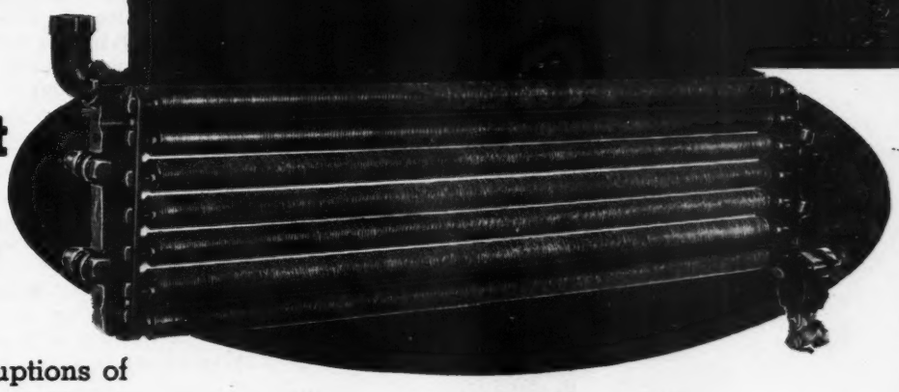
DRY AIR





Helps Prevent *Train Delays*



Have you ever charged costly interruptions of train service to faulty brake operation? Perhaps they were caused by condensation in pipes and valves, which could have been prevented if the air were cooled to atmospheric temperature, and precipitated moisture ejected, before reaching the last main reservoir ● It is sometimes difficult, however, to insure dry air with conventional radiating means on modern locomotives because space limitations preclude installation of sufficient pipe in a favorable location ● This difficulty is overcome by our radiator type Aftercooler. It eliminates involved piping, conserves space, can be readily located in the path of natural air currents, and, is the most efficient cooling means yet devised. Moreover, precipitated moisture is automatically ejected whenever the compressor governor operates ● Many of these Aftercoolers have been installed, with outstanding results. On one particular railroad where formerly valves and connections were dripping with moisture, after a 30 mile run from humid valley to cool mountain top, they now remain bone dry. Admittedly, dry air has here helped maintain brake performance integrity, and thereby contributed to consistency of train operation ● The Aftercooler can perform a similarly-effective service for you also. » »

WESTINGHOUSE AIR BRAKE COMPANY

tendent of the Colorado division, with headquarters at Denver, Colo. **L. A. Bates,** supervisor of schedules at Omaha, has been promoted to assistant superintendent in charge of transportation on the entire Nebraska division, with the same headquarters.

Mr. Mulick was born at Omaha on October 19, 1903, and entered railway service on August 16, 1923, as a switchman on the Union Pacific at Omaha. On February 2, 1928, he was promoted to assistant yardmaster at that point and on August 24, 1934, he was appointed assistant general yardmaster. In May, 1935, he was advanced to trainmaster at Marysville, Kan., and on December 1, 1937, he was transferred to North Platte, Neb. One month later, Mr. Mulick was transferred to Laramie, Wyo., and on July 5, 1939, he was promoted to assistant superintendent at Green River, Wyo. On March 4, 1940, he was transferred to Omaha and on October 8, 1940, he was transferred to North Platte.

N. A. Walford, division superintendent of the Canadian National, with headquarters at Stratford, Ont., has been transferred to the London division, London, Ont., succeeding **G. A. Stokes,** promoted to general superintendent of the Northern On-

J. F. Pringle

tario district, with headquarters at North Bay, Ont. Mr. Stokes succeeds **J. P. Johnson,** who has been transferred to the Southern Ontario district, with headquarters at Toronto, Ont., succeeding **J. F. Pringle,** who has been appointed chief of transportation, with headquarters at Montreal, Que.

Mr. Pringle, a native of Cornwall, Ont., began his service with the Canadian National in November, 1919, as assistant engineer in the engineering department at Montreal and continued in that position until 1923, when he was appointed transportation engineer to the chief of transportation. In 1925 Mr. Pringle became assistant to the chief of transportation and later in the same year he was sent to Toronto as assistant general superintendent of transportation. During the winters of 1929-30 and 1930-31, while still employed by the Canadian National, Mr. Pringle went with the National Railways of Mexico to assist in modernizing and reorganizing traffic methods on the Mexican lines. In August, 1932, he was appointed general superintendent of transportation on the Canadian National. He was appointed general superintendent, Southern Ontario district, in 1936, and remained in that position until the time of his recent appointment. In his new capacity Mr. Pringle will have supervision of all transportation matters generally throughout the entire system.

TRAFFIC

Warren W. Brown general agent for the New York, Chicago & St. Louis (Nickel Plate) at Pittsburgh, Pa., has been promoted to assistant general freight agent, with headquarters at Chicago, a newly created position.

Donald L. Behler has been appointed general agent of the Illinois Terminal with headquarters at Chicago, succeeding **J. M. Fowler,** who has been transferred to New York, these appointments effective October 1, 1941.

James L. Scales, traveling freight and passenger agent on the St. Louis-San Francisco at Tulsa, Okla., has been promoted to general agent at Little Rock, Ark., succeeding **O. P. Rainey** who has been transferred to Blytheville, Ark., relieving **J. R. Holland,** resigned.

E. Smith Reed, industrial engineer for the Arkansas Agricultural and Industrial Commission at Little Rock, Ark., has been appointed industrial agent on the St. Louis Southwestern, with headquarters at St. Louis, Mo., succeeding **J. L. Moss,** who has been granted a leave of absence to serve as industrial engineer, Ordinance department, Washington, D. C.

William Stapleton, whose promotion to general passenger agent for the Canadian National, with headquarters at Vancouver, B. C., was reported in the *Railway Age* of September 13, was born at Bristol, England, on May 20, 1884, and attended Barry (Wales) Grammar School and the Civil Service Colleges, Cardiff, Wales. He entered railway service in May, 1903, in the general office of the passenger department

William Stapleton

of the Canadian Northern (now part of the Canadian National) at Winnipeg, Man., and in 1908 was promoted to traveling passenger agent. In December, 1909, he was appointed city ticket agent at Winnipeg and in May, 1910, he was appointed general agent for the Canadian Northern Steamship Lines, with the same headquarters. One year later Mr. Stapleton was appointed district passenger agent for the Canadian Northern at Saskatoon, Sask., the position he held until his recent promotion.

Arthur T. Erickson, whose promotion to general passenger agent of the Minneapolis, St. Paul & Sault Ste. Marie, with

Arthur T. Erickson

headquarters at Minneapolis, Minn., was reported in the *Railway Age* of September 13, was born at Minneapolis on March 14, 1887, and attended business college for one year. He entered railway service on July 16, 1904, as a stenographer on the Soo Line. From October 1, 1905, to March 1, 1908, he served in various clerkships, then being appointed ticket agent at Minot, N. D. On January 1, 1909, he went with the Chicago Great Western as a passenger rate clerk at St. Paul, Minn., and on March 1, 1911, he returned to the Soo Line as a rate clerk in the general passenger department at Minneapolis. Mr. Erickson was promoted to chief rate clerk on July 1, 1917, and on January 1, 1928, he was appointed tourist agent, supervising tourist and convention travel. In May, 1941, he was also assigned supervision over advertising.

J. A. Ferguson, coal freight agent for the Erie at Cleveland, Ohio, has been promoted to general coal freight agent, with the same headquarters, a newly created position. **E. C. Julius,** coal and coke agent at Chicago, has been appointed coal freight agent, with the same headquarters, and **W. N. Stenfelt,** coal agent at Chicago, has been appointed assistant coal freight agent at that point. **J. A. Mucha,** assistant coal freight agent at Buffalo, N. Y., has been promoted to coal freight agent, with the same headquarters.

ENGINEERING & SIGNALING

V. C. Hanna, resident engineer on the Gulf, Mobile & Ohio at Meridan, Miss., has been appointed assistant engineer in charge of construction of the Terminal

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Railroad Association of St. Louis, with headquarters at St. Louis, Mo.

A. E. Korsell, assistant engineer on the Chicago, Rock Island & Pacific at Chicago, has been appointed engineer of grade crossings, with the same headquarters, a newly created position.

C. W. Rapp, land commissioner for the Missouri Pacific, with headquarters at Little Rock, Ark., has been appointed right of way agent, with headquarters at St. Louis, Mo., succeeding **V. I. Nettleton,** deceased.

MECHANICAL

Peter B. Rogers, superintendent of the Chicago Car Works of the Atchison Topeka & Santa Fe at Chicago, has been appointed superintendent of the West Wichita (Kan.) shops, succeeding **Tom Dix,** who has retired.

W. A. Newman, assistant superintendent of the West Burlington (Iowa) shops of the Chicago, Burlington & Quincy, has been promoted to superintendent of shops, at West Burlington succeeding **H. Modaff,** who retired on September 1 because of ill health after 49 years of service.

PURCHASES AND STORES

W. M. Robertson, district storekeeper of the Chicago & Eastern Illinois, has been appointed general storekeeper, with headquarters as before at Danville, Ill., a change of title.

OBITUARY

George B. Loughnane, who retired on May 1, 1930, as division engineer on the Chicago & North Western at Escanaba, Mich., died at his home in Chicago on August 25.

William Frazar Jones, former president of the New York Railroad Club and retired general storekeeper and purchasing agent for the New York Central, died in the Albany hospital, Albany, N. Y., on September 13 after a short illness. Mr. Jones was 78 years of age. Born on March 7, 1863, at Fairplay, Md., he entered railway service in 1881. He served on various roads, including the Pennsylvania, Burlington, Illinois Central and Central Railroad of New Jersey, and entered the service of the New York Central in 1900. He was general storekeeper for that road over a period of years and in 1927 he was appointed purchasing agent, dining service, with headquarters in New York City. Mr. Jones retired from railroad service in 1935. He was president of the New York Railroad Club in 1924 and subsequently served as president of the Central Railroad Club of Buffalo.

Paul Max Gault, signal engineer of the Missouri Pacific Lines, at St. Louis, Mo., died suddenly in that city on September 16. Mr. Gault was born at Waverly, Kan., in 1884, and was graduated in electrical engineering from Ohio State University, Columbus, Ohio, in 1906. He entered railway service in the same year as a signal apprentice on the Pennsylvania Lines West, and worked in various capacities in the maintenance and construction of automatic signals and mechanical and electric interlocking plants until April 1, 1909, when he was transferred to the signal engineer's office as a draftsman. At the end of four years' apprenticeship he was transferred to the Chicago terminal on automatic signal construction. In January, 1911, he was promoted to division signal inspector on the Chicago terminal. On April 1, 1913, Mr. Gault left the Pennsylvania to become supervisor of signals of the Illinois division of the Illinois Central. He was appointed signal inspector in the office of the signal engineer at Chicago the following year. He was promoted to office engineer on January 15, 1915, being assigned as a pilot signal engineer on valuation work in October, 1917. Mr. Gault returned to the signal department as office engineer on the completion of this work, and in January, 1923, he was promoted to assistant signal engineer, with headquarters at Chicago, which position he held until his resignation to become signal engineer of the Missouri Pacific, effective January 1, 1927. The following year he was appointed also signal engineer of the International-Great Northern and the Gulf Coast Lines. Mr. Gault served as vice-chairman of the Signal Section, A. A. R., in 1928 and 1929, and as chairman in 1930. He also served as vice-chairman of the A. A. R. Joint Committee on Grade Crossing Protection, and was a member of the A. A. R. Committee on Automatic Train Control.

George Morton, who retired as freight traffic manager of the Chicago, Burlington & Quincy, with headquarters at Chicago on April 1, 1936, died on September 12, at his home in Riverside, Ill. Mr. Morton was born at Burlington, Iowa, on

George Morton

March 21, 1866 and entered railway service in 1883 as a clerk in the general freight office of the Burlington & Missouri River (now part of the Burlington), serving with this company consecutively as a rate clerk, secretary to the general freight agent and chief clerk until 1900. In that year, Mr. Morton was appointed assistant general freight agent on the Burlington at Chicago. In 1920 he was advanced to assistant freight traffic manager and in 1929 he was further promoted to freight traffic manager, the position he held until his retirement.

John Cannon, chief operating officer of the Missouri Pacific, with headquarters at St. Louis, Mo., died on September 14, following an operation at the Missouri Pacific hospital in St. Louis. Mr. Cannon was born at Cairo, Ill., on May 6, 1872, and entered railway service in 1886 as a messenger in the stores department of the Illinois Central at Cairo. He then held various clerkships in the mechanical department until May 1, 1892. From that date to 1905, he was successively chief clerk to the assistant superintendent of the Chicago division, chief clerk to the superintendent of the Amboy and the St. Louis divisions, chief clerk to the general superintendent of transportation, assistant trainmaster of the

John Cannon

St. Louis division, and chief clerk to the general manager. During 1905, he served as trainmaster on the Springfield and on the Chicago divisions. In the latter part of 1905 he went with the Missouri Pacific as superintendent at Coffeyville, Kan., and later served as superintendent at Little Rock, Ark., De Soto, Mo., Poplar Bluff and Jefferson City. On November 1, 1915, he was appointed general superintendent of the Eastern district, with headquarters at St. Louis, Mo., which position he held until May, 1917, when he was appointed superintendent of transportation. In January, 1919, he was promoted to general superintendent of transportation, and in March, 1920, to assistant general manager. He was promoted to general manager in February, 1925, and in September, 1926, he was elected vice-president and general manager. In the latter part of 1933 his title was changed to chief operating officer.

Mr. Cannon has been active in the affairs of the Association of American Railroads and served for a number of years as a member and later as chairman of the Operating-Transportation section. More recently he has been a member of the carriers General Conference Committee which is negotiating with labor organization representatives in Chicago.

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